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THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—14TH YEAR. SYDNEY: SATURDAY, APRIL 16, 1927. No. 16.

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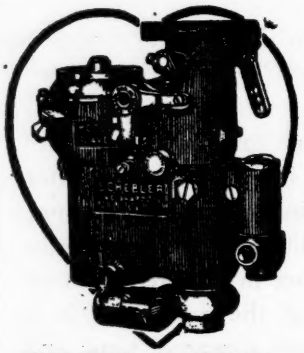

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An Address.[1]

WORKERS' COMPENSATION ACT, 1926: SOME MEDICAL ASPECTS.

By R. J. Millard, C.M.G., C.B.E., M.B., Ch.M. (Sydney),
Retiring President of the New South Wales Branch of the British Medical Association.

Perhaps the most discussed event of our year has been the passing of the *Workers' Compensation Act* of 1926, which became law on July 1. This meeting will probably be interested in a review of workers' compensation in general and of this Act in particular.

The main principles on which all modern workers' compensation acts are based, are that the employer is directly liable for injury to a worker in his employ, that compensation and rehabilitation of the injured worker are legitimate charges on the working expenses of any industry and that it is in the interests of the community that the worker be restored to productiveness as soon as possible. Workers' compensation legislation aims at such restoration and also at protecting the worker from the fact and fear of insecurity and its accompaniments, the exhaustion of savings, a lowered standard of living and recourse to public or private charity. It gives him a legal right to the help which formerly he could only get from charity.

Historical.

In Great Britain the *Employers' Liability Act,* 1880, and the *Workman's Compensation Act,* 1897, 1906 and 1923, constitute the legislative basis for compensation to workers who suffer "personal injury by accident arising out of and in the course of employment" or in consequence of one of the industrial diseases under the Act of 1923. Under the Act of 1880 negligence of the employer had to be proved. But under Act of 1897 the employer was made liable even when negligence could not be proved, on the ground that the workman was unable to bear unaided the monetary loss involved by injury.

In the United States of America workers' compensation legislation dates from 1911 and is now in force in forty-two of the forty-eight States.

In the other Australian States and in New Zealand *Workers' Compensation Acts* are in force.

The New South Wales Act.

In New South Wales the first *Workman's Compensation Act* was passed in 1910. This was repealed by the *Workman's Compensation Act* of 1916. The present Act which takes the place of the others, was passed in March, 1926, and came into force on July 1, 1926.

It contains important provisions which were not in the 1916 Act, but which have been adopted from acts in force in other countries.

[1] Delivered at the Annual Meeting of the New South Wales Branch of the British Medical Association on March 31, 1927.

Definition of Injury.

The definition of injury is given as "personal injury and includes a disease which is contracted by the worker in the course of his employment, whether at or away from his place of employment and to which the employment was a contributing factor."

Note the omission of any reference to accident and specific inclusion of disease "contracted in the course of employment and to which the employment was a contributing factor."

Earlier legislation in England and the United States of America restricted compensation to accidental injury, accident being defined as an unexpected sudden happening. Occupational disease attributable to the occupation was regarded as a natural result of the hazards of the occupation and presumably it was held that the worker who took up an occupation, would know that this entailed risks and should not subsequently complain if he suffered thereby. In respect of some occupations diseases were scheduled as being peculiarly attributable to occupation and compensation was payable to the worker who incurred such disease. Thus anthrax, lead and other metallic poisoning and phosphorus poisoning were scheduled as occupational diseases "caused by or specially incident to a particular employment." But under these earlier Acts unless the diseased worker could fit his disease into the schedule, no liability was imposed on the employer.

After the passing of the present Act in New South Wales it was suggested that injury as therein defined might be interpreted to mean any disease incurred by a worker, since whatever the disease it might well be held that his employment contributed in some degree to cause it. However, in the case of McCooey *versus* Blackwell, which was before the Workers' Compensation Commission in August, 1926, the Commission defined the words "to which the employment was a contributing factor" as equivalent to the words "arising out of the employment." This connotes a demonstrable causal relation between the employment and the disease. In the case of McCooey, a milk carter, bronchitis was incurred by him. But the Commission held that it had not been established that his employment was a contributing factor, bronchitis being a risk to which the general community was exposed and especially at that season of the year.

This interpretation cleared the air considerably. Before it was given many claims had been mooted if not actually made, for every kind of disability incurred by the worker which could by any stretch of imagination be said to have been contributed to by his employment.

The Workers' Compensation Commission.

The Workers' Compensation Commission constituted by the Act is an innovation in New South Wales. Similar commissions or boards have been appointed in many other countries. The appointment of such a commission is intended to simplify and shorten legal procedure in connexion with claims under the Act. The Commission has wide

powers in dealing with "all matters and questions arising under the Act."

Compulsory Insurance.

Compulsory insurance by the employer against his liability in respect of an injured worker is another new feature and protects the injured worker against danger of financial failure by his employer. An employer may be authorized by the Commission as a "self insurer" under certain conditions.

All "insurers" are required to contribute to a fund from which salaries and other expenses of the Commission are paid.

Compensation.

Compensation to an injured worker is greater under this Act than under the former Act. Dependents of incapacitated workers are now paid for.

Vocational Reeducation.

Vocational reeducation and rehabilitation of disabled worker may be paid for by the Commission from the fund (Section 52).

Medical Benefits.

Medical benefits are included in the compensation. As medical practitioners we are particularly concerned with the section under which compensation includes the cost of such medical, surgical and hospital treatment as may in the opinion of the Commission reasonably be required to relieve the worker from the effects of the injury.

> The treatment shall include nursing, medicines, medical and surgical supplies, crutches, artificial members and other curative apparatus and shall be continued for three months if required or for such further time as the Commission directs.
>
> The fees and charges for the treatment shall be limited to such charges as prevail in the same community for similar treatment of injured persons.
>
> The Commission may, if it thinks fit, direct a change of doctor or treatment when in its judgement a change is desirable or necessary.
>
> The cost to the employer shall be limited to £50 unless the Commission otherwise directs.

Section 10, Subsection 4 of the 1926 Act reads as follows: "If the employer fails to provide promptly the treatment, the worker may do so at the expense of the employer." This appeared very clear and satisfactory for the injured worker, but unfortunately the subsection was continued: "but he shall not be entitled to recover any amount expended by him for such treatment unless he has requested the employer to furnish the same and the employer has refused or neglected to do so." This was the snag which wrecked many otherwise legitimate claims for medical benefits. The injured worker who had obtained prompt treatment on his own initiative without first requesting the employer to furnish the same, was told that the employer was not liable and the doctor's bill remained unpaid. It soon became obvious that this was a very serious defect in the Act and in an amending Act just passed subsections 3 and 4 have been amended to read:

> (3) The worker shall notify the employer without undue delay that he has obtained treatment and the cost of such treatment to the employer shall be limited to £50 unless the Commission otherwise directs.
>
> (4) If the worker obtains medical treatment for himself the employer shall be entitled to have the worker examined by a medical man selected by the employer in consultation with the worker's medical attendant.

How Will the Act Affect Medical Practice?

Before the passing of the Act the injured worker got treatment of his injury largely at public hospitals or as a lodge patient at lodge rate paid by himself or as a private patient from his own medical attendant.

The Act establishes the principles: (i) that the injured worker has a legal right to treatment, (ii) that the cost of such treatment is payable by the employer, (iii) that a public hospital may recover from the employer the cost of any hospital treatment provided for his injured worker (*Workers' Compensation Amendment Act*, 1927). Thus whether the injured worker be a hospital patient, a member of a friendly society or a private patient, his employer is liable for the cost of treatment of the injury.

In regard to the friendly societies it is proposed that Clause 5 of the Common Form of Agreement shall be amended to make it clear that treatment of the injury of an injured worker is not a charge on the lodge rates.

In regard to hospital treatment the question is not so simple. An injured worker entitled to medical benefits under the Act is not one of the "indigent sick." Is he on that account to be refused public hospital treatment, assuming that he desires to obtain it and that his injury is of such a nature as to be suitable for hospital treatment? This attitude has been advocated by many, but if it were generally adopted the usefulness of the public hospital would be considerably curtailed. And its general application is not practicable. A severely injured worker must be treated in hospital and if not in a public hospital, where? A worker who is disabled for less than three days is not entitled to compensation. When he presents himself at the hospital on the day of injury he has not yet established his status as an injured worker under the Act and should be treated as in the days before the Act. At the end of three days, if he is then an injured worker within the meaning of the Act, it might be practicable to send him elsewhere for treatment. But where to? Some will say to a private hospital. But are private hospital charges "such as prevail in the same community for similar treatment of injured persons"? I think the Commission would in most cases rule that they are not.

The amending Act recently passed empowers a public hospital to recover from the employer the cost of any hospital treatment provided for his injured worker. This suggests the question of what payment, if any, should be made to the visiting medical staff for treatment given by them to such patients.

But the question should have a wider reference. At the present day a great many of the patients treated at our public hospitals are able to pay something for medical attendance in addition to paying for maintenance and other hospital charges. This

being so, should the visiting medical staff continue to give medical attendance gratuitously? The *Workers' Compensation Act* has not created a new problem, but it has added to the already large number of hospital patients who are financially able to pay something for medical attendance.

In Great Britain this matter has been much discussed and the Representative Body in 1924 recommended that when payment for treatment is made to a hospital "the visiting medical staffs should receive recognition of their services either in the form of an agreed honorarium or by means of a percentage of all such payments being passed into a special fund, such honorarium or fund to be allocated in any manner which the visiting medical staff may determine." I believe this scheme has been adopted at some hospitals in Great Britain, but I do not know at how many.

Medical Fees.

The provision of the New South Wales Act which limits fees and charges to "such charges as prevail in the same community for similar treatment" is contained in many acts in the United States of America. The general purport is that the charge shall be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living.

The Texas law refers to the increased security of payment afforded by the Act. This increased security of payment must necessarily be taken into consideration when a schedule of fees chargeable is drawn up.

The general practice under the several workers' compensation acts is that the commission may review the fee charged and reduce it if excessive. The principle adopted is that charges "should be based on reasonable and customary rates and the fact that the bill is to be paid by employer, should not be an incentive to unreasonable charges."

Official fee schedules have been adopted by the commissions in thirteen American States. The California Commission says of its schedule that "it is designed for use in connexion with medical services rendered an individual with an average earning capacity of 1,250 dollars *per annum*."

Here in New South Wales our Branch Council has issued a schedule of fees, somewhat similar to the Californian official schedule. This has not so far been officially adopted by the Commission, but it is to be hoped that it may be, perhaps with some modification, as more experience is gained of the working of the Act. A conference has been held with representatives of the insurers who desire the official adoption of some such schedule as a help in dealing with claims for medical benefits.

Already experience has suggested the addition to the schedule of a rate of payment for the after treatment of a number of injured workers at the same time and place. In many large industrial concerns the employer provides treatment at the works or other centre and injured workers attend there for after treatment at certain appointed times. A charge of ten shillings and sixpence for each worker receiving after treatment under such circumstances would be unreasonable and excessive and it appears a more suitable arrangement to charge for the time occupied, that is, at a rate per hour. In California the fee for such "office service" as it is there called, is at the rate of 6·25 dollars per hour.

Conclusion.

This Act is based on laws already existing in Great Britain and the United States of America and should be of advantage to the community in general.

Its aims are twofold, to support the injured worker and his dependents during the period of disability and to restore him to usefulness as early as possible by providing medical benefits. It is expected of the medical profession that as in the past it will give the best possible service in furtherance of this second aim. And it is recognized that money spent on effective treatment is a sound investment not only from the workers' point of view, but also from that of the employer, whose compensation payments depend on the duration of disability of the worker.

But the cost of these medical benefits is a charge on industry and on the progress of industry depends the prosperity and progress of our country.

This aspect must be considered in respect to fees and charges to be made. Excessive charges may bring on the profession the accusation of exploiting the Act without regard to the interests of the community.

PERTUSSIS.[1]

By Robert Southby, M.D., B.S. (Melbourne),
Honorary Medical Officer to Venereal Diseases Clinic, Children's Hospital, Melbourne.

Historical.

Whooping cough (*tussis quintana* or five hourly cough as it was called at the time) was recorded for the first time as a definite clinical entity in 1578 A.D. by Guillaume de Baillon (or Ballonius), who was a dean of the Paris Faculty of Medicine. Next, in 1580, Beckel described it in his *"Synopsis novi morbi"* as *catarrhus febrilis*. In spite of these reports the disease was still frequently confused with influenza, until it was further described by Thomas Willis in London in 1682. He emphasized the epidemic nature of the illness which he named *"tussis puerorum convulsiva seu suffocativa."* Sydenham also recorded outbreaks in 1670 and 1679.

It is of interest to follow the world wide spread following an epidemic in Germany, where it was first mentioned in the literature in 1724. The disease then spread widely through Europe in 1732 in which year it was transported to America. It was first recorded officially in New Zealand in 1847 and in Australia not until 1890.

Ætiology.

It is now more or less generally agreed that pertussis is a specific infectious disease, the causa-

[1] Read at a meeting of the Victorian Branch of the British Medical Association on February 2, 1927.

tive organism being the Bordet-Gengou bacillus which was first discovered in 1900 and successfully cultivated and further examined in 1906. The organism is very similar in many of its characters to the influenza bacillus and the bacillus of dog distemper. This organism can be isolated from the sputum in most cases at the onset of the typical paroxysms, but as a general rule it is difficult to detect it if the whoop has been present for more than four weeks.

Experimentally the disease has been produced in dogs and chimpanzees by direct inoculation of the particular organism into the respiratory tract. Some observers have also recorded natural infections in domestic animals. Again, the serum of patients suffering from the disease has been shown to possess a high titre of agglutination for this particular bacillus, whereas the serum of healthy control patients has no such action. A complement fixation test has also been shown to be well established both in the early stages of the illness and during convalescence.

Several features in connexion with the immunity reactions are worthy of mention. Susceptibility to the disease is almost universal and there is not the usual immunity during the first six months of life which is known to occur so often in the case of diphtheria and measles. One attack usually protects the patient effectively from a further infection and true second attacks are rare, although they have been recorded.

The serum of patients recently recovered from the illness and the serum from horses that have been repeatedly inoculated with large doses of the pertussis bacillus, both show a high agglutinating action for the organism, but are not antitoxic. Further, horses, inoculated with repeated and increasing doses of toxin produced by the Bordet-Gengou bacillus, do not produce an antitoxin.

The disease was formerly regarded as being of the nature of an acute general infection, but more recently many have considered it a local disease with constitutional symptoms due to the toxin absorbed from the site of the lesions. Should the latter be correct, it is different to most other local diseases in conferring an immunity on the patient, for this is a characteristic usually possessed only by the acute general infective diseases.

In spite of the fact that most children are likely to contract whooping cough sooner or later, one should endeavour to postpone the attack as long as possible, for the older the child is before he contracts pertussis, the more hopeful is his chance of recovery.

Unnecessary exposure of young children is inexcusable and almost criminally negligent and, when one remembers that in the United States alone 10,000 children die annually from pertussis or perhaps more correctly from its complications, it surely is a strong plea for the better education of the public as to the serious nature of the illness. If only the parents could be more enlightened and the public health authorities would take a more serious view of the infection and institute stricter means of preventing its spread, we would perhaps less often hear the casual remark of the mother that her child "only has the whooping cough" and "the sooner the others get it over the better" and certainly a number of good citizens would be saved each year who are now lost simply because the public are not made to realize how serious whooping cough is for young babies.

The figures in Table I. show the number of deaths due to whooping cough in Victoria and Australia respectively during the last twelve years. This table gives an average yearly death roll of 84 for Victoria and 300 for Australia. Should this number of deaths occur as a result of infantile paralysis, small pox or plague, special measures would be instituted to combat the disease and lower the mortality, but because it is "only whooping cough" no particular campaign is deemed necessary.

Table I.—Showing the Number of Deaths due to Pertussis in Victoria and Australia During Twelve Years.

Year.	Victoria.	Australia.
1915	89	185
1916	118	426
1917	67	282
1918	66	234
1919	33	211
1920	174	561
1921	80	428
1922	44	182
1923	20	119
1924	247	420
1925	42	463
1926 (9 months)	28	171

Symptoms.

The incubation period seems to vary between seven and fourteen days and is certainly not more than sixteen days.

The Prodromal Stage.

The prodromal stage lasts usually for a few days only and may be associated with general malaise, headache, lassitude, irritability and sleeplessness. The child is obviously "out of sorts," but there is as yet nothing to indicate the nature of the illness.

Catarrhal Stage or Period of Invasion.

The catarrhal stage or period of invasion is characterized by slight fever, coryza and cough. The conjunctivæ are often irritated and the eyes "watering." Sneezing frequently occurs and on examination the palate may be found to be injected. The cough becomes persistent, increases in frequency and severity, is often choking in character and is much worse at night. This stage usually lasts for seven to fourteen days and the complement fixation test yields a positive result in 90% of cases at this period.

Spasmodic or Paroxysmal Stage.

The spasmodic or paroxysmal stage includes the period from the onset to the disappearance of the paroxysmal attacks of coughing and may last from four to six weeks or for several months. It is characterized by repeated paroxysms of the typical cough, consisting of a number of sudden, short expiratory efforts followed by the long drawn inspiration or "whoop" and often associated with

vomiting during or at the end of the paroxysm. It is a well known feature of pertussis that in the intervals between the coughing the child is apparently quite well.

The Stage of Defervescence or Decline.

The stage of defervescence or decline is that during which the attacks of coughing diminish in frequency and severity and the child gradually recovers. This may be only several weeks or may last for some months. I have purposely described the symptoms of these various stages very shortly, because they are so well known to you all that it would be merely a waste of valuable time to deal with them more fully.

Diagnosis.

With a history of the paroxysmal attacks of coughing, associated with the "whoop" and accompanied by cyanosis or vomiting, there is no doubt as to the diagnosis, especially if the child is seen during the course of an epidemic or is known to have been in contact with a playmate suffering from whooping cough. In a certain proportion of cases, however, the diagnosis is not quite so straightforward and there may be simply a paroxysmal cough with occasional vomiting and no whoop or simply a paroxysmal attack; especially is this so during a widespread epidemic when many of these atypical cases are encountered. They are responsible very often for the wide dissemination of the infection, for the nature of the infection may go unsuspected for a considerable time. Then again other respiratory conditions such as enlarged tracheo-bronchial glands, bronchiectasis, pulmonary abscess, empyema and even hydatid of the lung may be associated with paroxysmal attacks of very distressing coughing which can closely simulate a true pertussis.

With infants also it is often very difficult to arrive at a certain diagnosis, as it is the exception rather than the rule to find these small patients developing a definite "whoop." With them a paroxysmal cough, associated with vomiting and some difficulty in breathing and finally the expulsion of a small quantity of tenacious white mucus together with the physical signs of an extensive bronchitis or early bronchopneumonia are pathognomonic of pertussis.

I should like to emphasize also that small babies with a severe simple bronchopneumonia often have a very persistent irritating cough which, however, does not occur in spasms with intervals of relative comfort, as is seen with whooping cough.

Another important point in the diagnosis is the blood picture which reveals a decided leucocytosis characterized by an absolute and relative increase in the lymphocytes.

Complications.

It has been truly said that whooping cough and measles together with their complications are the cause of more deaths among infants and young children than all other illnesses combined.

Pertussis in itself is not such a serious condition, apart from the mechanical difficulty in respiration and the associated straining during the severe paroxysms of coughing.

The various complications met with may be described as follows.

Lung Conditions.

The pulmonary complications are the commonest and the most serious, especially for babies.

Bronchopneumonia is the commonest cause of death during an attack of whooping cough. The principal deciding factor in the liability to this complication is the age of the child and three out of every four cases are in infants under two years of age. The bronchopneumonia usually occurs at the stage of maximum severity of the cough and it is rarely, if ever, due to the Bordet-Gengou bacillus, but almost always a secondary infection with other organisms, frequently streptococcal.

Lobar pneumonia is encountered much less commonly and generally in the older children. It can be taken as an expression of the lowered resistance of the patient allowing the invasion by the complicating secondary infection in the usual way.

Emphysema is always present to a certain degree as a direct result of the frequent and persistent cough. On rare occasions the wall of the air cells may be ruptured, giving rise to what is known as an interstitial emphysema. The escaped air may travel through the mediastinum and appear as a subcutaneous emphysema above and to the sides of the manubrium of the sternum or even spread more extensively.

Bronchiectasis and tuberculosis of the lungs or bronchial glands are well recognized later complications.

Affections of the Digestive System.

The digestive system is very often disturbed either as a result of the general infection or as a result of the swallowing of quantities of the white mucus which is so tenacious that it cannot be effectively expectorated. The manifestations may take the form of vomiting or diarrhœa.

As a result of the mechanical strain of coughing one frequently sees frenal ulcer, rectal prolapse or the appearance of an umbilical or inguinal hernia.

Hæmorrhage.

Hæmorrhage is another complication which may be only of short duration and of no consequence or, on the other hand, may be very serious and accompanied by far-reaching and permanent sequelæ owing to the site at which the hæmorrhage has occurred.

Epistaxis and subconjunctival hæmorrhage are commonly seen and occasionally an hæmoptysis. Quite often an extravasation may occur into the cellular tissues of the eye resulting in an ordinary "black eye."

Permanent deafness may result from bleeding into the internal ear and occasionally an escape of blood may be noticed from the external auditory meatus.

Intracranial hæmorrhage may be meningeal or cerebral and followed by paralysis in the form of

monoplegia or hemiplegia. Complete aphasia has also been recorded.

A girl, aged ten years, was admitted to the Children's Hospital in 1925 because she had become unconscious and suffered from a paresis of the right arm following a severe bout of coughing. Later the arm became paralysed and the leg was then noticed to be paresed. She was kept under observation and the condition appeared to be spreading. The diagnosis of intracranial hæmorrhage was made and a decompression performed. No blood clot could be found, but only an intense cerebral œdema and congestion which apparently accounted for the localizing signs. These findings were confirmed at autopsy.

Extravasations into the skin, thyreoid gland and spinal cord have also been reported. Sudden blindness has also occurred, consequent on detachment of the retina or a central lesion. Small hæmorrhages may also take place in the kidney causing a transient hæmaturia.

Convulsions.

Convulsions are commonly seen and may be of serious import. They may be due to one of several causes, such as an actual hæmorrhage into the brain, to irritation from the toxins of the disease or occasionally, as has been suggested, to the cyanosis accompanying the characteristic and prolonged laryngospasm.

Kidney Lesions.

A transient albuminuria may be observed as a result of renal congestion and less often an actual nephritis associated with œdema, diminution of urine and the presence of red blood cells and casts in the urine.

A female patient, aged two years and eight months, who recently came under the observation of the author, was of rather unusual interest. This child first developed whooping cough which was complicated in the third week by acute nephritis. The latter condition was almost clear by the end of the fifth week and a severe bronchopneumonia then supervened. This persisted for several weeks and then passed into a condition of delayed resolution.

The child became progressively worse and in the ninth week from the onset died of acute heart failure with generalized œdema, ascites, cyanosis and orthopnœa.

The autopsy revealed an extremely large and dilated heart, the muscle of which was extremely "soft and flabby"—practically in a state of myomalacia. The lungs showed a very extensive bronchopneumonic consolidation with purulent infiltration and a considerable degree of pulmonary œdema. The kidneys showed some venous congestion, but, apart from this, no evidence of the previous nephritis.

This case history is recorded in detail owing to the rarity with which such a young child is seen presenting all the features of an acute heart failure corresponding exactly to that seen in adults.

Treatment.

The very multiplicity of measures and drugs which have been advocated from time to time for the treatment of pertussis, is sufficient indication of our helplessness in dealing with this serious and distressing illness.

Our knowledge at the present time may be summed up by saying that there is no specific for whooping cough at all comparable to quinine for malaria, the arsenicals for spirochætal infections or diphtheria antitoxin. Further we have no drug nor mechanical means which materially alters the clinical course of the disease.

We have therefore to rely chiefly on measures which are palliative in character and which aim at lessening the frequency and severity of the paroxysms and minimizing the risk of complications in young children.

These may be dealt with as follows.

General Measures.

Good fresh air is one of the best adjuncts in this direction. This may be obtained by nursing the child in a large, bright, airy room or on a balcony or in fine weather right out in the open air. The fresh air and sunlight greatly improve the general resistance of the child and thus help to minimize the complications. An extremely dry and hot climate is, however, equally trying as a cold moist atmosphere.

A change in surroundings is almost always effective in clearing up the cough which so often persists for some considerable time after the illness has run its course.

The clothing should be as light and as loose as possible and a flannel garment should be worn next to the skin for preference.

The nursing of these patients demands a considerable degree of patience and perseverance, especially with those of a highly strung or nervous disposition. Such children are greatly helped by petting and pampering, especially during the severe paroxysms as there is usually a superadded nervous or spasmodic element in addition to the actual mechanical interference with respiration.

Regular sponging or bathing also improves the general condition, particularly if the course is febrile.

The diet is one of the most important factors of all and every endeavour should be made to replace the nourishment lost with each attack of coughing and vomiting. By insisting on this much loss of weight and general condition can be avoided.

Sleep is another all important factor both for the patient and the other members of the household and to attain this end drugs may be used in maximum doses.

Mechanical Measures.

The application of a firm abdominal binder greatly assists the musculature of the abdominal wall during the strain of severe bouts of coughing and vomiting.

During the paroxysms grasping the lower jaw from behind and pushing it forward and upwards helps the patient considerably.

Gastric lavage with normal saline solution or mild alkaline solutions effectively removes the large quantities of tenacious mucus which is so often swallowed.

In very severe cases one may have to resort to intubation, just as with laryngeal diphtheria, in order to relieve the laryngeal obstruction. A similar result may also be obtained by the use of chloroform anæsthesia.

Local Applications.

Local applications have been used in the form of sprays of local anæsthetics or antispasmodics to the larynx and trachea. The results have not been very gratifying and the actual application is often quite as distressing to the child as the cough for which it is administered.

Inhalations of steam impregnated with compound tincture of benzoin, eucalyptus or creosote are often very beneficial. They are most effectively given by means of the steam kettle and a tent erected over the bed.

Diathermy, X ray therapy and ultraviolet rays have been advocated for shortening the course of the cough and more recently chlorine gas has been advocated for the same purpose, but I have had no practical experience with these methods.

Medicinal Measures.

Of the innumerable drugs which have been used in turn, a few seem to have a definite beneficial effect.

Among these the most useful are phenazone, belladonna given in gradually increasing doses until the physiological effects are produced and quinine.

In an attempt to let the child sleep at night chloral, the bromides and codeine and morphine derivatives should be used freely.

Garlic, either as the powder worn in the boots or under the clothing or as *syrupus allii* is definitely helpful in some instances and it has the added advantage of keeping others away from the patient.

Ether given intramuscularly has many supporters, but the results obtained seem to vary considerably and uncomfortable local reactions may occur if the injection is not given sufficiently deeply.

For the very severe paroxysms in which the child is almost asphyxiated and *in extremis,* I have seen at least two infants saved by an intracardiac injection of twenty minims of a one in a thousand solution of adrenalin.

Another infant who vomited persistently after every feeding as a result of a spasm of coughing, induced when taking the bottle, made a dramatic improvement when 1·2 mils (twenty minims) of heroin linctus (1·5 milligrammes to four cubic centimetres or one-fortieth of a grain to one fluid drachm) were given ten minutes before the feeding.

Specific Measures.

Let us now consider methods which aim at being specific for the particular infection.

Serum from convalescent patients and from horses treated with repeated inoculations of the Bordet-Gengou bacillus has been used, but without any beneficial effect. Vaccines on the other hand appear to be of definite value.

In this connexion I have followed the results obtained with two different series of children.

I have previously published in this journal[1] some observations on the use of a mixed vaccine, containing the pertussis bacillus, pneumococcus and *Micrococcus catarrhalis,* in which it appeared that large doses of vaccine administered in the early stages lessened the frequency and severity of the paroxysms, but had little effect on the duration of the disease. This series of children was treated in 1922.

During the recent whooping cough season of 1926 a number of children have been treated with large doses of pure pertussis bacillus vaccine. The vaccine was prepared by Dr. Webster from patients in the early stages of the disease and administered in doses of 500 millions, 1,000 millions, 1,500 millions and 2,000 millions and in several cases doses of one, two, four and six thousand millions were given at intervals of two or three days.

Observation of the records of these cases shows that an even higher percentage of patients treated with vaccine showed definite improvement as compared with the previous series, although there was again very little alteration in the total duration of the disease in the patients treated with vaccine from the control series who had no vaccine.

The detailed figures are seen in Tables II., III. and IV.

Table II.

Year.	Method of Treatment.	Children Under Two Years.	Children Over Two Years.	Total.
1922	Vaccine	34	40	74
	No vaccine	17	21	38
1926	Vaccine	43	65	108
	No vaccine	26	11	37

Table III.

Year.	Result of Treatment.	Children Under Two Years.		Children Over Two Years.	
		Treated with Vaccine.	Treated without Vaccine.	Treated with Vaccine.	Treated without Vaccine.
1922	Definitely improved	28 (or 82%)	11 (or 65%)	35 (or 87%)	12 (or 57%)
	Not improved	6 (or 18%)	6 (or 35%)	5 (or 13%)	9 (or 43%)
	Total	34	17	40	21
1926	Definitely improved	37 (or 86%)	14 (or 54%)	62 (or 94%)	5 (or 46%)
	Not improved	6 (or 14%)	12 (or 46%)	3 (or 6%)	6 (or 54%)
	Total	43	26	65	11

TABLE IV.

Class of Patient.	1922 Series.			1926 Series.		
	Period before Treatment.[1]	Period after Treatment.	Total Duration of Disease.	Period before Treatment.	Period after Treatment.	Total Duration of Disease.
Patients under two years treated with vaccine.. ..	10 days	14 days	24 days	11 days	14 days	25 days
Patients under two years not treated with vaccine.. ..	13 days	21 days	34 days	12 days	20 days	32 days
Patients over two years treated with vaccine.. ..	13 days	15 days	28 days	13 days	14 days	27 days
Patients over two years not treated with vaccine.. ..	13 days	18 days	31 days	12 days	18 days	30 days

[1] Periods are the average periods for patients who improved under treatment.

In the first series the inoculations were given twice a week and in the second series even larger doses were given on alternate days for four doses.

It is of interest to note that in both series the vaccine treated patients manifested a definite improvement as judged by a decrease in the frequency and severity of the spasms, but that there was little alteration in the duration of the illness as compared with those not treated by vaccine who improved under treatment.

In an attempt to assess the value of vaccine in the treatment of whooping cough, it must always be borne in mind that the epidemics vary in severity in different years and further that in the one season the disease varies in severity in different suburbs or districts apparently according to climatic conditions and the general surroundings, home conditions and state of nutrition of the patients.

Taking all these factors into account I think it may be justly claimed from the above results, although the total figures are comparatively small, that:

1. Vaccine definitely improves the condition of most patients with whooping cough by lessening the frequency and severity of the paroxysms.

2. Pure pertussis vaccine gives slightly better results than the mixed vaccine.

To obtain these results it is essential that the vaccine should be given as early as possible, in very large doses and at frequent intervals. Recently some authorities have claimed that the best results are obtained with a fresh vaccine, not more than seven days old and in which no preservative is used in the preparation.

Acknowledgments.

In conclusion I should like to thank those of my colleagues of the Honorary Medical Staff of the Children's Hospital who have kindly granted me permission to use their case histories and also the Commonwealth Statistician for his assistance in supplying the data quoted in reference to the mortality resulting from pertussis.

Reference.

(1) Robert Southby: "Vaccine Treatment of Pertussis," THE MEDICAL JOURNAL OF AUSTRALIA, July 4, 1925, page 11.

MANAGEMENT OF WHOOPING COUGH IN HOSPITAL.[1]

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IN presenting this paper in the absence of Dr. Scholes, I do so with some trepidation. It seems to me that everybody must know as much about whooping cough as I do. As a matter of fact, I think the more we have to deal with whooping cough, the less we feel we know about the disease. Perhaps this is a pessimistic view to take, but it is probably the cause of the sceptical attitude taken up when anyone comes forward with an alleged new specific cure for whooping cough.

The reason why there are so many cures for whooping cough is not difficult to find. In no disease probably is there such a wide range in severity and duration. I should like to emphasize particularly the word duration.

The severity of the disease is influenced by many factors. Primarily I should put age. Whooping cough is a very different disease in children under three years than it is in those older. Children of course with pulmonary weakness will usually take the disease badly. Lastly the hygienic surroundings of the disease will influence the severity and also the liability to complications. When we consider what influences the duration of the disease, we are not on such sure ground. What is originally regarded as a healthy child, may have a mild catarrhal period and originally a mild whoop. We find, however, that in spite of treatment the whoop will continue for months with consequent lowering of the resistance of the child. Again we have a child who has a severe catarrhal period and who perhaps will whoop badly for a week. No treatment at all may be given and then suddenly the whoop will cease and the child will be over the attack. It is this sudden ceasing of the whoop which of course accounts for the number of "cures" for whooping cough.

I cannot help comparing our progress in the ætiology and treatment of whooping cough with the progress in some of the other infectious diseases. In diphtheria we have a specific cure and have made good strides in the preventive side of the disease. In scarlet fever we have now an antitoxin of un-

[1] Read at a meeting of the Victorian Branch of the British Medical Association on February 2, 1927.

doubted value. In measles observers appear to be in the track of the causative organism. In whooping cough we are not yet even quite sure of the causative organism, as in some quarters doubt has been thrown on the specificity of the Bordet-Gengou bacillus.

In spite of all modern methods of treatment whooping cough is still the disease with the highest mortality rate. In Fairfield during the last epidemic the deaths from whooping cough outnumbered the deaths from all other diseases in the hospital. This of course is all very pessimistic, but I have made these observations as an excuse for this paper not containing anything new in the way of treatment.

Hospital versus Home Treatment.

Now I should like to discuss the question of which patients do well in hospital and which are just as well left at home.

The types of patient we get in hospital are: (i) Patients suffering from uncomplicated whooping cough coming from poor homes in which the mother has to go to work, (ii) young children under three years and very many under twelve months with complications. In summer the chief complications are gastro-enteritis and bronchopneumonia, in winter mostly bronchopneumonia., (iii) patients suffering from uncomplicated whooping cough but with severe paroxysms. In this type convulsions frequently occur.

Patients of the first group (those whose mothers go to work) have to come into hospital and as a rule they do well.

Patients of the second group should also come into hospital and undoubtedly do better in hospital than at home. It is important, however, that no drastic changes of diet should be made in the case of young children.

My own opinion is that patients of the third group, those with severe and frequent paroxysms of uncomplicated whooping cough, do not improve as rapidly in hospital as they do in their own homes, provided of course, that they are decently and intelligently cared for at home. The results in hospital are poor as a rule. The only advantages are the hygienic surroundings, fresh air *et cetera* and the fact that their feeding is under skilled supervision. The disadvantages are that they are in contact with other children who may infect them with various strains of cocci and cause complications. For this reason at Fairfield we always prefer to treat patients in small rooms or in the open air, keeping all those with complications apart from those with plain whooping cough. Another disadvantage from which the uncomplicated group suffers is the effect of imitation. One child whooping will start the whole ward doing the same.

Treatment.

Now having discussed the types of cases in hospital, let me turn to the treatment. Of course the first point of attack must be the cough. I should like it noticed that I do not state here "to stop the cough," although of course that is the ultimate result we hope to obtain. The point I wish to bring out, is that in some cases I do not consider it advisable to stop the cough altogether. We must remember that the cough is a response to a stimulus for the ejection of a foreign body and in some cases I think the use of sedatives is wrong. Our treatment should be towards making the cough easier and thus causing as little distress as possible.

The ideal method of treatment would be some drug that would enable the plug of mucus which is the cause of the trouble, to be expelled easily from the larynx. Expectorant mixtures sometimes act in this direction. Belladonna may also act by lessening the amount of mucus formed, but it may also increase its tenacity. I must admit, however, that in some cases it is necessary to resort to sedatives to lessen the frequency and severity of the attacks.

The indications for stopping the cough are: (i) to prevent hæmorrhage, heart strain, convulsions *et cetera*, (ii) to enable the child to get more and regular sleep, (iii) to diminish the frequency of vomiting which follows the attack. In children of school age, although it is perhaps very annoying to the other inmates of the house, the cough is not of such great importance to the health of the child itself. As a matter of fact they frequently thrive on it. I think chiefly because the stomach is cleansed frequently. Anything that is difficult of digestion and remains long in the stomach, is discarded before it does any harm. But in little children, especially those under twelve months, there is very grave danger. Take for example a child with twenty-four paroxysms a day. It is wakened every hour and has to be washed after the whoop and the bottle has to be got ready. It probably vomits after every other whoop. Now it is going to have great difficulty in getting enough food to keep it alive. This, of course, is obvious, but another danger is not always emphasized, because it is not so obvious. This is the danger of overfeeding these children. This may sound a sort of paradox. These children, however, are frequently given too large a feed or a food too rich for their weakened digestion and gasto-enteritis follows.

The purity of the food of course is of the utmost importance. A very small amount of contamination will be sufficient to produce an infective colitis in these children when their resistance is so much lowered.

Let me now return to the means of treatment at our disposal.

Local Applications.

I think the only methods of local application worth bothering about are in the forms of inhalation. Creosote and benzoin do help, I think, to make the cough easier and also have a sedative action on the inflamed larynx and bronchi.

Internal Medication.

I once treated several series of patients, about forty in each, with the following: belladonna, antipyrin or phenazone, ether given intramuscularly. I imagined for a while that I was getting wonderful

results with ether and I think that on the whole it did have the most beneficial action. But I must admit that the children had a fair amount of pain and sloughing occurred in a few cases. The result of the series was very inconclusive and the remedies we use in Fairfield at present, are belladonna for the febrile patients, phenazone for the afebrile and sedatives like chloral for those with the more severe and continuous paroxysmal forms of the disease.

In a certain type of case, probably children with a tendency to tetany, one paroxysm may succeed another in such quick succession that heroic measures are necessary. I think that the only remedy to consider in these cases is chloroform. Just the other day I had one of these patients and I used intubation as suggested by O'Dwyer. But I found that the child received no benefit and from one attack immediately went into another, showing I think that in this case at any rate the cause of the spasm was below the larynx. I had to remove the tube and use chloroform. It may be interesting to note that this child had had a course of vaccine.

Vaccine Treatment.

I must say that the types of patient sent to hospital are not the ones to whom vaccines can be given as a fair test. The Out-Patients' Department of the Children's Hospital and other similar places are the only places in which there would be a sufficient number and variety of cases to justify the formation of an opinion. Dr. Scholes has given vaccines at Fairfield since they were first introduced. At first ten to twenty and one hundred million of *Bacillus pertussis* were given and were considered large doses. People then talked about the wonderful results that were obtained. Dr. Scholes now holds the opinion that vaccines may be of benefit, but only if given in large doses (up to five thousand million) and if given early in the disease, preferably in the catarrhal period.

In estimating the value of vaccines or of any method of treatment we should not be content with results obtained from any uncontrolled series. The ideal way of course is to give every alternate patient no drug treatment or specific treatment of any kind. At Fairfield we have for a period of twelve months not given any drug treatment at all. Of course the general practitioner could not possibly do this. It is interesting to note, however, that the results obtained during this period were regarded as quite satisfactory. Might I tentatively suggest that the benefits obtained in some cases by vaccine treatment may be purely non-specific. It seems to me that a vaccine which is prepared by heating organisms sufficiently to kill the specific organism, must also lose its specific element. In a recent journal it is claimed that increased antibody formation results from the injection of filtered bacterial washings. I do not know whether this has been tried in the case of whooping cough, but it seems to me to be a much more rational method. Also I should be interested to hear if any benefits had been obtained from injections of mixed vaccines from which *Bacillus pertussis* had been excluded.

Summary of Treatment.

To sum up the general treatment of a patient in hospital, I should lay chief value on the nursing and the points to aim at are regular sleep, careful feeding with proper, easily digested food which is above suspicion, hygiene of the mouth, the teeth and gums being kept clean and clean air to breathe. A severe case of whooping cough in an infant provides a wonderful test of nursing.

As I have pointed out, the dietetic path is strewn with difficulties. On the one side we have the danger of starvation and on the other side the risk of overfeeding.

Treatment of Complications.

In bronchopneumonia fresh air is absolutely essential. I feel pretty certain that a complicating bronchopneumonia can be avoided, if fresh air and general hygiene rules are observed. We have a certain amount of whooping cough developing in the wards at Fairfield. I do not think, however, that any of these patients have developed a bronchopneumonia. The prevention of gastro-enteritis and colitis, however, is a difficult matter. With regard to the treatment of this complication, I feel quite sure we have saved the lives of a number of babies in Fairfield by the free use of intraperitoneal injections of saline solution. I have had no experience in the value of deep X ray therapy in whooping cough or of diathermy in pneumonia. I think, however, that Dr. Colin Macdonald could be persuaded to give us some information on the subject.

Infectivity.

As regards the infectivity of whooping cough, Dr. Scholes holds the view that in the great majority of cases when the whoop is well established the child is not infectious. Of course, there is always to be considered the possibility of carriers. At Fairfield we have noted that a child who is admitted into a diphtheria ward whooping, very rarely infects others in that ward.

Conclusion.

In conclusion I should like to apologize for the rather disconnected nature of this paper, but I have tried to avoid textbook matter as much as possible and to rely mainly on practical experience gained in hospital.

PROSTATECTOMY AND ITS AFTER RESULTS.

By J. T. Tait, M.D., M.S. (Melbourne),
Melbourne.

In presenting a review of eighty consecutive patients with prostatic disease admitted into Saint Peter's Hospital, London, during a period of some seven months, my acknowledgments are due to the surgical staff of that hospital by whose permission these results are published. The term prostatic disease is used to include all conditions associated with the usual symptoms of benign enlargement of the gland, but not those in which malignant disease

was evident. Operative treatment was carried out on every patient admitted during the period, the patients falling naturally into two groups, namely those treated by suprapubic prostatectomy in one stage and those treated by a two stage procedure. The relative numbers in each group with the respective postoperative deaths are as follows:

(i) Suprapubic prostatectomy in one stage, sixty-five cases (82%) with three deaths (mortality 4·6%), (ii) two stage procedure, fifteen cases (18%) with four deaths (including three after cystotomy alone). The total mortality was 8·75%.

Of the fifteen patients in Group II ten were submitted to prostatectomy after some months of suprapubic drainage, three did not survive the cystotomy and in two the bladder was still being drained twelve months after the preliminary operation. The swing of the pendulum which from the original prostatectomy carried out in selected cases had risen high towards making the two stage operation almost a routine, is thus returning to prostatectomy in one stage as a safe method in a large percentage of all the patients coming for treatment. The following review of the details of the cases is undertaken to show the types which were dealt with, the indications for grouping them as described and the results of the treatment adopted.

Group I.—Suprapubic Prostatectomy in One Stage.

Symptoms of Obstruction.

In all cases except eight, the chief symptom for which patients sought relief was increasing difficulty of micturition which had extended over periods varying from a few months to more than ten years, though three patients came with acute retention of sudden onset and no history of previous difficulty.

Twenty patients or nearly one-third of this group, had complete retention of urine on admission, in three others there was overflow incontinence, the bladder being chronically distended to the level of the umbilicus and the urine dribbling away without expulsion. Prostatectomy in one stage was performed successfully in all after the bladder had been emptied through a tied-in catheter. By the gradual decompression of the over-distended bladder not more than three hundred cubic centimetres (ten ounces) of urine being withdrawn at any one time, the dangers of hæmorrhage and suppression of urine were avoided.

Chronic retention of gross degree with residual urine of more than three hundred cubic centimetres (ten ounces) was present in twelve patients, seven of whom had suffered from one or more attacks of complete retention, but were able to pass urine at the time of admission. Residual urine of between one hundred and twenty and three hundred cubic centimetres (four and ten ounces) was found in twenty-two patients, while the condition of only eight with retention of less than one hundred and twenty cubic centimetres could be classed as early.

The various degrees of obstruction occurring in these patients have been tabulated in this form to accord with the three periods of the disease described by Guyon as follows:

(i) Period of premonitory troubles, nocturnal frequency with some difficulty and urgency of micturition, residual urine under one hundred and twenty cubic centimetres (four ounces), eight cases.

(ii) Period of residue, incomplete retention without distension, residual urine one hundred and twenty to three hundred cubic centimetres (four to ten ounces), twenty-two cases.

(iii) Period of chronic retention with distension, thirty-five cases as follows: (*a*) Incomplete, residual urine more than three hundred cubic centimetres (ten ounces), twelve cases; (*b*) chronic distension with overflow, three cases; (*c*) complete retention, twenty cases.

It would appear, therefore, that the majority of patients still come to operation when in the third period or period of danger, while the percentage seen in the early but definite stage of the disease remains very small.

Symptoms of Irritation.

Increased frequency of micturition is the symptom of earliest date preceding those due to obstruction by an average time of two years. It is at first nocturnal, occurring in the second part of the night and increasing from once to five or six times during the hours between 2 a.m. and 8 a.m. More frequent diurnal micturition becomes established during the period of residue and the frequency has then to be distinguished from that due to complications such as cystitis and stone. The "hourly or half-hourly bladder" is an indication of cystitis and in its greatest degree the symptom becomes an active incontinence; one patient in the series had been wearing a urinal day and night for eighteen months.

Pain was not usually prominent in the uncomplicated cases. It occurred twice as a distressing symptom in the early stages of the disease. In the late cases it was characteristic of such secondary conditions as acute retention, stone or cystitis.

A history of hæmaturia was given by twelve patients. This number includes two in whom papilloma of the bladder was found, two with vesical calculus and one of the nine patients who were found by subsequent histological examination of tissue removed to be suffering from malignant disease. Hæmorrhage, therefore, occurred from the malignant prostates in the same percentage as from simple adenomata (11%).

General Clinical Features.

A general clinical examination gives information of the greatest value in deciding a patient's fitness for the one stage operation. Some digestive disturbance is produced in the majority of cases, cardio-vascular changes and chronic pulmonary disease are present in many men of prostatic age and symptoms of urinary toxæmia are usually found. The severity of the general symptoms is not in direct relation to the amount of obstruction or of bladder irritation. In estimating the degree

of chronic renal failure more reliance was placed upon the clinical evidence as shown by the condition of the tongue and the presence or absence of thirst, gastro-intestinal trouble, headache, irritability or drowsiness, than upon tests of renal function or the investigation of the urinary conditions present.

Of the sixty-five patients submitted to prostatectomy in one stage, a furred but not dry tongue was found in 25% and the same proportion had headache. Some thirst and symptoms of *dyspepsie urinaire* were present in 33%, while more than one-half had aching behind the loins. Cardio-vascular disease was evident in nearly one-third and an equal number suffered from chronic bronchitis and emphysema.

Myocarditis and bronchitis are important factors in the immediate prognosis. One patient with advanced heart disease came successfully through the operation. A consulting physician who examined him beforehand reported upon his cardiac condition as follows: "Dilatation and irregularity are severe, but not an absolute bar to prostatectomy, provided that the œdema of the legs disappears with rest in bed."

On the other hand, of the three deaths which occurred in this group, two were due to cardiac failure on the ninth and twelfth days respectively and the third which took place on the twenty-fourth day after operation, was the result of bronchitis in a stout and flabby man with an emphysematous chest. None of these patients had any pronounced symptoms of renal failure and the result of the renal function test in each was above normal.

Preoperative Treatment.

Owing to the pressure upon hospital beds, the average time that the patients were in the wards before operation was four days. The first day was given to the collection of a twenty-four specimen of urine, the urea content of which was estimated. On the second day the urea concentration test was done and the general examination with cystoscopy was carried out on the third day.

In the patients with complete retention the bladder was emptied by gradual decompression through a tied-in catheter during the first twenty-four or forty-eight hours.

The bladders of three of the patients whose urine was heavily infected, were drained by catheter for six, seven and nine days respectively.

Cystoscopy was done as a routine diagnostic measure in all except those admitted with complete retention. It is a useful complement to the rectal examination, giving exact information of the size and form of an intravesical projection of the prostate and of the condition of the bladder wall which may be hypertrophic or atonic. The ureteric orifices are studied with regard to inflammation, activity and character of efflux and the presence or absence of stone, bladder growth or diverticulum is determined.

All patients were treated by forced fluid intake as soon as the concentration test was finished. This, with regulation of the gastro-intestinal tract, constituted the essence of preoperative treatment.

Complications.

The complications which were present are as follows:

Cystitis	37 cases.
Vesical calculus (including one with prostatic calculi)	6 cases.
Papilloma of the bladder	2 cases.
Urethral stricture	1 case.
Diverticulum of the bladder	1 case.

In three other cases pouches with a depth of between two and three centimetres were found.

Test for Renal Function.

The only renal function test employed was the estimation of urea (*a*) in a sample of the twenty-

Table I.—Showing Patients Submitted to the One Stage Operation.

Urine for Twenty-four Hours.		Urea Concentration Test.				Clinical Symptoms of Chronic Renal Failure.
Urea Percentage.	Quantity in Ounces.	Hours.	Percentage.	Ounces.	Grains of Urea.	
1·4	49	First	1·3	14	79	Some thirst; flatulence.
		Second	1·4	5	31	
		Third	1·6	4	28	
1·3	80	First	1·3	7	40	Tongue furred, moist; some thirst.
		Second	1·6	5	35	
		Third	1·3	4	23	
1·2	60	First	1·6	5	35	Thirst and backache.
		Second	1·7	3	22	
		Third	1·7	3	22	
1·2	76	First	0·9	10	38	Slight backache.
		Second	1·0	8	35	
		Third	1·3	6	34	
0·7	59	First	1·7	6	45	Tongue furred, moist; flatulence.
		Second	1·5	3	20	
		Third	1·8	6	47	
1·6	60	Second	1·3	6	34	Tongue furred, backache.
1·4	45	Second	1·5	8	52	Tongue furred, thirst.
1·3	72	Second	1·6	5	35	Some backache.
1·3	40	Second	1·5	5	34	Slight backache.
1·1	52	Second	1·3	7	40	Nil.
1·0	60	Second	1·1	4	19	Some thirst, backache.
0·9	68	Second	1·6	4	28	Some thirst, *ætatis* eighty-two years.
0·9	60	Second	1·1	8	38	Thirst, backache.
0·8	45	Second	1·0	1.5	7	Tongue furred, moist; thirst one week.
0·8	88	Second	0·65	16	45	Thirst three months; some backache.

four hour specimen of urine, giving the amount of urea excreted daily on usual diet, (*b*) as a concentration test. The results of the test are compared in the tables below with the evidence of deficient renal function obtained by clinical examination.

In Table I are given the figures for the fifteen patients who had the lowest percentages of urea of those operated upon in one stage. All of these patients recovered. Table II shows the results of the test and of the clinical examination in the fifteen cases in which the two stage operation was performed. Amongst these there were four deaths.

The urea concentration test was continued through the first, second and third hours in nine cases.

A few anomalous results of the urea concentration test are found owing to diuresis extending into the second hour.

Pathological Changes.

The pathological changes found in the prostate gland in each case have been classified as shown in Table III. The figures for those in which the gland was removed in two stages have been added and tend to show that the small prostate is a relatively large factor in producing the more serious clinical condition.

The proportion of prostates which proved to be malignant upon microscopical examination was 12%, which agrees with that found by many observers.

Table III.—Showing Pathological Conditions Found After Different Types of Operation.

Condition Found.	Number in One Stage Operation.	Number in Two Stage Operation.
Large adenoma	22	3
Moderate adenoma ..	21	1
Small adenoma	6	2
Chronic prostatitis ..	7 (2 atrophic)	—
Carcinoma	9	—
Total	65	10

The following notes of two cases in which chronic prostatitis was the prominent feature, illustrate different stages of the disease and the results of treatment.

Case I.—The patient was fifty-nine years of age and had suffered from nocturnal micturition for five years, this increased to six times per night. There had been aching pain at end of penis on micturition for two years. Some difficulty had been present for the last twelve months. The general condition was good, but the patient was neurasthenic and complained of loss of sexual appetite.

The urine was clear. The urea percentage was 1·9 in forty-five ounces of urine and the urea concentration test yielded a figure of 2·2%.

The residual urine was sixty cubic centimetres (two ounces).

On rectal examination the prostate was not enlarged, it was smooth, firm and movable.

Cystoscopy revealed trabeculation and a small collar-like intravesical projection of the prostate.

Table II.—Showing Patients Submitted to the Two Stage Operation.

Urine for Twenty-four Hours.		Urea Concentration Test.				Clinical Symptoms of Chronic Renal Failure.	Remarks.
Urea Percentage.	Quantities in Ounces.	Hours.	Percentage.	Ounces.	Grains of Urea.		
2·6	61	First	2·8	4	49	Tongue dry, brown fur, excessive thirst, temperature 38·3° C. (101° F.) tender in loins.	Pyelo-nephritis.
		Second	2·5	1·5	16		
		Third	2·9	2	25		
2·1	36	First	2·1	7	64	Thirst, headache and vomiting for two weeks, flatulence, hiccup.	Death after cystotomy.
		Second	2·1	4	37		
		Third	2·3	3	30		
1·6	54	First	1·5	2	13	Considerable irritability, rigors, temperature 37·8° C. (100° F.).	Severe bladder infection.
		Second	2·2	3	29		
		Third	2·1	3·5	32		
1·6	92	First	1·5	2·5	16	Excessive thirst, anorexia, flatulence, loss of weight.	Thin and feeble.
		Second	1·7	2	15		
		Third	1·7	1·5	11		
1·8	38	Second	1·9	4	34	Tongue dry, brown fur, great thirst, wasting, vomiting for two days.	Chronic bronchitis.
1·7	48	Second	2·2	4	38	Headache, flatulence, loin pain, rigors.	Severe cystitis, pyelo-nephritis.
1·5	35	Second	1·6	5	35	Irritable and nervous, anæmia, œdema of feet, severe dyspepsia.	Death after cystotomy.
1·4	72	Second	1·4	7	43	Tongue red and swollen, thirst, vomiting and headache for three weeks, dyspnœa.	Death after cystotomy.
1·3	40	Second	1·6	2·5	17	Tongue dry, brown, cracked, excessive thirst and headache.	*Ætatis* 83.
1·3	30					Drowsy, tongue dry, brown, excessive thirst, rigors, temperature 38·9° C. (102° F.), tender in loins.	Too ill for urea concentration test.
1·1	93	Second	1·5	8	52	Thirst, aching in loins.	Infection.
0·8	60	Second	1·5	8	52	Rigors, nephrectomy.	Infection, renal calculus.
0·8	90	Second	1·0	10	44	Excessive thirst, headache, anorexia, flatulence.	Cardio-vascular disease.
0·8	102					Tongue dry, brown, cracked, great thirst, headache, pain and tenderness in loins.	Cardio-vascular disease.
0·7	65	Second	0·6	13	34	Thirst, nausea, flatulence, loss of weight.	Cardio-vascular disease. Death.

At operation a small closed prostate was removed.

Microscopical examination revealed chronic prostatitis.

The wound was closed and urine passed freely *per urethram* on the twentieth day.

The patient was discharged from hospital on the twenty-fourth day.

He reported in six months that his health was perfect and that he slept right through the night.

Two years after operation he wrote to the effect that no difficulty was present. The frequency was every three hours by day but not at night. There was no pain. The urine was very clear. The wound was soundly healed without bulging. There had been no swelling of the testicles. The sexual powers were good.

Case II.—The patient was fifty-six years of age. He had had difficulty of micturition for years; three months previously the stream became a dribble. Complete retention did not occur, but incontinence was present at night. Aching pain had been present behind the right loin for three months and pain was present in the left loin for one week. The patient was drowsy. His tongue was dry and covered with a brown fur. The temperature was 38·9° C. (102° F.). Rigors occurred and the patient complained of great thirst.

The urine was turbid with pus and blood. The residual urine was six hundred and sixty cubic centimetres (twenty-two ounces).

On rectal examination a small prostate, asymmetrical, firm, slightly movable, was found. The bladder was drained by catheter, but very little urine was secreted.

Rectal injections of saline solution were given every four hours with forced drinks. The urea percentage was 1·3.

Suprapubic cystotomy was performed under local anæsthesia. In twelve days the patient was discharged from hospital with de Pezzer drainage. He was readmitted in three months. The tongue was then moist and clean. Thirst was slight. The appetite and digestion were good. No pain was present in the back.

The urine contained a few pus cells. The urea percentage was one in sixty-five ounces.

The results of the urea concentration test were as follows: First hour, 1·1% in four ounces or 19 grains of urea; second hour, 1·5% in three ounces or 20 grains of urea; third hour, 1·6% in two ounces or 14 grains of urea.

Cystoscopy revealed chronic cystitis with a slight intravesical projection of the prostate on the left side and some posterior projection.

At operation a small firm prostate was enucleated, it was slightly adherent.

Examination of a microscopical section revealed reduction of gland elements with fibrosis of interglandular stroma. It was non-malignant.

The patient commenced to pass urine *per urethram* on the ninth day.

The suprapubic wound was dry on the twelfth day. He was discharged sixteen days after operation.

According to a letter twelve months afterwards he had no difficulty, the stream was full. He passed urine by day four or five times and by night usually once. He had no pain. The urine was clear. The wound was sound but bulging was present which could be kept in by a belt. He had no trouble in the testicles. His general health was good.

After-Treatment.

Free irrigation was the basis of the postoperative treatment, the aim being to get the bladder clean as soon as possible. Recognizing the presence of a granulating wound in the prostatic cavity, its treatment by free drainage and lavage was considered to be the best means of reducing the risk of early complications of sepsis, such as ascending infection, secondary hæmorrhage and epididymitis and of such later results as persistent cystitis and postprostatectomy obstruction with possible non-closure of the suprapubic fistula.

In some cases a catheter was left in the urethra to drain the prostatic cavity and the other patients were treated by urethral irrigations after Janet's method in which the granulating area is washed from its most dependent part with outlet through the suprapubic tube. This tube was retained until the bladder was reasonably clean, an average time of between six and seven days being necessary.

The urine began to pass *per urethram* between the twelfth and fourteenth day and full micturition was reestablished a few days later. The average stay in hospital after operation was twenty-four days, as after closure of the bladder three or four days were allowed for firm union of the suprapubic wound and gradual recovery of normal urinary function.

A tribute must be paid to the specialized nursing which played a large part in the after-treatment of these patients. All were forced to drink large quantities of water during this time and it is hardly an exaggeration to say that a watch was kept every hour upon the condition of the tongue and the amount of urine secreted.

Complications During After-Treatment.

Hæmorrhage.

Three cases of hæmorrhage occurred, one of reactionary hæmorrhage on the day after operation and two of secondary hæmorrhage on the eighth and ninth days respectively. All three patients were treated by freely opening the suprapubic wound, clearing the bladder of clots and packing the prostatic cavity with gauze around a tied-in catheter through which irrigation with hot silver nitrate solution was carried out. Convalescence was prolonged in each case for eight days beyond the average time.

Uræmia.

There was continued vomiting with hiccough and abdominal distension after operation in two patients.

The urea concentration test in one was 2·4%, the other had a low urea output. Both recovered after free administration of fluids and an extended period of drainage, though in one case the wound opened during vomiting and an omental hernia developed.

Sepsis.

A spreading superficial infection of the abdominal wound appeared in one patient on the fourteenth day and delayed his discharge until the fifth week.

Epididymitis developed in seven cases (10%), in four of which it may be attributed to the use of catheters, in three to packing of the prostatic cavity, though four of these seven patients had previously had gonorrhœa and showed signs of past infection in the epididymis.

A femoral thrombosis developed on the ninth day in one patient.

There was no case of pulmonary embolism.

Remote Results.

An inquiry was made into the condition of all patients in the series at times varying from one to two years after their discharge from hospital. In addition many of them were examined personally. Replies were received from all but eight in this group and consideration will be given separately to (i) cases of simple disease of the gland and (ii) those in which carcinoma was found to be present.

Results in Simple Disease of the Gland.

In all cases except eleven the remote results of the operation were entirely satisfactory. There was no difficulty in micturition and the stream was full. Pain was absent, frequency normal and the urine clear. The wound was sound and without hernia. There had been no swelling in the testes and the general health was good. One man had been passed as a signalman by a railway company's doctor six months after operation; another had been at work as a joiner since five weeks after leaving hospital.

Five patients reported that an attack of epididymitis had occurred between two and six months after discharge from hospital. In three cases this had been the only troublesome sequel, but the other two still complained of nocturnal frequency of once or twice per night and the same symptom was found in one of the patients who had suffered from secondary hæmorrhage during convalescence. In each of the six cases the urine was clear and the function otherwise normal, the general health being "very good."

The remaining five patients suffered from persistent cystitis. One of them had a diverticulum of the bladder, producing a residual urine of one hundred and twenty to one hundred and eighty cubic centimetres (four to six ounces), two had smaller pouches of the bladder wall and two showed some degree of postprostatectomy obstruction.

In both of the cases in which small pouches were present, there were increased frequency and cloudy urine twelve months after prostatectomy. One of them was further complicated by hernia at the suprapubic wound, the occurrence of which has been already described. The opening in the bladder in this case took long to close and leaked again after the patient left hospital. He reported in four months with a dry wound, but had to wear an abdominal belt. This was the only case of postoperative hernia in the series of sixty-five one-stage operations.

The first of the patients with obstruction had contracted epididymitis three months after operation. There was no fistula and the urine became clear after the passage of sounds and lavage of the bladder, though some increased frequency persisted.

The second case presented unusual features. At operation numbers of calculi were removed from the prostatic cavity with a partially destroyed prostate. The suprapubic wound reopened after six weeks and sounds were passed and a catheter tied in. The fistula then closed in seven days and the condition remained good until eighteen months later, when the patient came with a vesical stone which was crushed and removed.

The following approximate percentages summarize the results of the simple cases.

Satisfactory results, normal urinary function and good general health	75%
Epididymitis occurred, but otherwise satisfactory	10%
Persistent cystitis due to various causes	10%
Deaths	5%

Results in Malignant Disease of the Gland.

Cases of clinically malignant prostate are not included in this series. The nine patients in whom carcinoma was found on histological examination, all left hospital in normal condition and in about average time, but in only two could the late results (up to two years) be regarded as quite satisfactory. One man reported in eighteen months: "Have not been so fit for years, can take a seven mile walk without fatigue."

Two patients were well one and two years after operation, but complained of frequent micturition and in one of them epididymitis had occurred two months after discharge from hospital.

Hæmaturia appeared in two cases as a sign of local recurrence. One patient was seen in fifteen months and had then been passing clots of blood for three weeks. There was slight difficulty and the stream was not full. He complained of no pain and had been at work since one month after leaving hospital. In the second case within fifteen months there was occasional blood in the urine and some pain and difficulty in micturition.

One patient from whom a large cystic prostate had been removed died in eighteen months from pyelonephritis after complete retention lasting three weeks. He had a large local recurrence, but no metastatic deposits.

In another patient acute retention occurred within a week after discharge. The suprapubic wound had to be reopened and he was fitted with a permanent drainage apparatus. Eighteen months later he was alive and well but complained of pain in the neck of the bladder.

The remaining patient could not be traced.

The late results in the cases with carcinoma may be tabulated as follows:

One, no reply; four, alive and well, eighteen months to two years; two, alive in fifteen months, but had hæmaturia; one, permanent suprapubic drain, alive eighteen months; one died in eighteen months.

Group II.—Two-Stage Prostatectomy.

It has been indicated that a certain number of patients require preliminary catheter drainage for some days before prostatectomy can be carried out. In fifteen patients, or 18% of the total admission in this series sufficient improvement did not take place with this method and in them a two-stage procedure was adopted. The patients who thus require drainage for some months, can be broadly divided into two classes, (i) those with advanced chronic interstitial nephritis, (ii) those with severe sepsis, though many present a combination of these conditions and may then be regarded as suffering from "urinary septicæmia."

In disturbance of urinary function little difference was found between the patients in Group II and those operated upon in one stage. There was complete retention in six cases and overflow incontinence in two others. Chronic retention of more than three hundred cubic centimetres (ten ounces) was present in four and the remaining three patients had a residual urine of between one hundred and twenty and three hundred cubic centimetres (four and ten ounces). That the two groups were clearly separated by the general symptoms of chronic renal failure rather than by the results of chemical tests, is shown in the tables which have been already given.

Six patients were admitted in a condition of urinary septicæmia as characterized by a dry brown tongue, great thirst, severe headache, nausea and vomiting, wasting, rigors and pain behind both loins. One of them died from suppurative pyelonephritis after the preliminary cystotomy, in the remainder the prostate was successfully removed after suprapubic drainage lasting for three to four months.

Five patients presented clinical evidence of chronic interstitial nephritis without severe infection. Cardio-vascular changes were pronounced and flatulence, loss of appetite and constipation were constantly present. The mortality in this class was high. Two patients died after cystotomy in thirteen days and ten weeks respectively. In the former *post mortem* examination revealed very contracted granular kidneys with many small cysts, but no suppuration. The percentage of urea in the urine before operation was 2·1, with a maximum concentration of 2·3%. In the latter case death occurred from bowel obstruction after a long period of chronic uræmia. A third patient died from renal failure following prostatectomy which was done after the bladder had been drained for nine months; while in another case drainage was continued for twelve months and the general condition had improved very little in that time. Prostatectomy was successful in the fifth case after supra-pubic drainage of the bladder for six months.

In the remaining class of four cases severe infection was alone the factor in deciding upon a two-stage operation. There was acute inflammation of all the coats of the bladder in one case, the bladder of a second patient had been infected from a calculous pyonephrosis. After nephrectomy complete retention of urine occurred and cystotomy was done, the prostate being removed two months later. Another patient refused the second operation preferring to continue with a permanent supra-pubic drain.

A cystoscopic examination was made in three cases after the cystotomy for the purpose of more exact diagnosis. The prostate in each was small and firm and microscopical examination after removal showed chronic prostatitis to be the predominant feature.

In judging the time at which the major operation could safely be performed, most reliance was placed upon the disappearance of those general symptoms which had made a prolonged period of drainage necessary. At the date of the prostatectomy the urea percentages were in many cases not so high as at the time of the preliminary cystotomy.

The average number of days spent in hospital after operation was twelve for the first stage and twenty for the second stage, making a total of thirty-two to be compared with an average stay of twenty-four days after the one-stage operations.

The late complications in the ten cases in which the prostate was removed in two stages, may be grouped as follows:

Postoperative ventral hernia occurred in four cases, in three of which complete excision of the suprapubic scar had been done at the second operation. All of these patients had full recovery of urinary function and good general health.

Epididymitis occurred in two patients after they had left hospital, but the later results were quite satisfactory.

Some cystitis remained in two patients twelve months after the operation.

There was one death and no reply was received from the remaining patient.

Summary.

1. Of eighty consecutive patients admitted 82% were operated upon in one stage and 18% required the two-stage method.

2. The two groups were distinguished by general clinical examination rather than by the renal function test.

3. The operative mortality for suprapubic prostatectomy in one stage was 4·6%, the mortality for all cases being 8·75%.

4. In 85% of one-stage operations for prostatic disease of innocent nature the late results were satisfactory, though 10% of the patients had an attack of epididymitis after discharge from hospital. In the remaining 10% there was persistent cystitis.

5. In 12% of cases histological examination showed that malignant change was present in the prostate and of these patients only 50% were well two years after operation.

6. A relatively frequent sequel of two-stage prostatectomy was postoperative hernia, otherwise the late results were comparable to those of the operation in one stage.

Reports of Cases.

OBSTRUCTION OF THE ILEUM IN PREGNANCY.

By F. C. Burke-Gaffney, M.B. (Sydney),
Honorary Out-Patient Surgeon, Bendigo Base Hospital, Victoria.

On February 15, 1927, I was called in by Dr. Catford to see Mrs. F., *ætatis* thirty-seven years, eight months and two weeks pregnant. She had passed nothing *per rectum* for five days and she was in great pain with vomiting and distension. On admission to hospital the pain, I believe, was thought to be due to the commencement of labour. As time went on, however, an obstructive condition was recognized.

The history was that some years ago she was operated on for a ruptured appendiceal abscess with peritonitis. Later on she was operated on for gall stones and a very difficult dissection was performed for the relief of adhesions of the omentum and lower bowels to the uterus and adnexæ by Dr. W. J. Long. This dissection freeing the uterus *et cetera*, I consider allowed conception to take place, as it was soon after this operation that she became pregnant for the first time having been married eighteen years ago.

She states that since conception she has been increasingly constipated. When I saw her with Dr. Catford it was evident that she was suffering from complete obstruction of the bowels. As the condition was almost sure to be due to adhesions, a Cæsarean section was decided on in order to enable a clear search to be made for the obstruction.

After removal of a living female child and completion of the Cæsarean section the obstruction was sought for. Crossing over the ileum near the ileo-caecal junction was a rather thick band compressing, but not obstructing the bowel; this band was tied and cut. About thirty centimetres (a foot) further up the ileum another thick band was found across the bowel completely constricting it. Under this band which was divided and tied, the bowel was cicatrized right round and its lumen obliterated. On each side of this obstruction the bowel seemed healthy, though very distended proximally, so I made a very considerable longitudinal incision with the constriction as centre and sutured the opening in the usual manner transversely (enteroplasty).

For the first three days the patient caused anxiety, the pulse being rapid and thready, but there was no distension. On the fourth day a high enema gave a good result and from then on her condition improved. She left hospital on March 13, 1927, with the wound healed and bowels acting normally. The baby is well and thriving.

The following points are of interest.

1. The conception, after eighteen years of conjugal life followed on almost immediately after the relief of the adhesions around the uterus and adnexæ.
2. The bands found at my operation must have been tightened more and more over the bowel as the uterus increased in size causing cicatrization and eventually obstruction.
3. The Cæsarean section gave a much easier access to the obstruction than if the uterus had not been emptied.
4. In this case the enteroplasty was quite adequate and much quicker than resection of the constriction and subsequent anastomosis.

IMMUNO-TRANSFUSION IN BACTERIAL ENDOCARDITIS.

By D. D. Browne, M.B., B.S. (Melb.),
Wangaratta, Victoria.

As the value of immuno-transfusion in bacterial endocarditis is an unsettled question it has been thought worth while publishing the following case report.

On January 16, 1926, Miss S.S., *ætatis* sixteen years, was brought to me with a history of loss of appetite and weight following an attack characterized by epigastric pain, vomiting, headache and nose bleeding a fortnight previously.

Her heart had been under suspicion two years before by a school medical officer, but there had been no cardiac disability at any time nor other than trivial ailments.

Examination revealed a tall well built girl, pale, with a temperature of 36° C. (96·8° F.), a pulse rate of 96 and respirations numbering 24 in the minute. She had a slightly furred tongue, a loud cardiac systolic bruit, audible over all areas, but mostly so just inside the apex beat. The hæmoglobin value of the blood was 70%; the systolic blood pressure was 110 and the diastolic 60 millimetres of mercury. No other abnormality was found. She was sent to hospital with a provisional diagnosis of subacute bacterial endocarditis. This was confirmed by a blood culture yielding a streptococcus and by the development of a typical septicæmic type of chart, swelling of the spleen and an absence of response to the Widal test. Dr. A. V. M. Anderson then saw her and concurred in the diagnosis.

On January 30, 1926, treatment was commenced with sodium cacodylate given intravenously and continued with two short breaks for thirty-five days. An autogenous vaccine derived from the original blood culture was also used.

The strain of streptococcus was not determined.

The vaccine was also used to produce, if possible, an immunity in two of her sisters whose blood compatability with hers was first determined. The dose aimed at was that which would just produce a reaction and was given twice a week for six doses.

On February 20, 1926, blood transfusion from one immunized sister was done five days after the sixth vaccine injection, four hundred and fifty cubic centimetres (fifteen ounces) of citrated blood being used.

There was no untoward reaction, but no obvious improvement beyond a slight accession of strength, improved appetite and diminished excursion of temperature and pulse for a few days.

On March 4, 1926, a sero-purulent effusion in the left pleural cavity was drained.

On March 29, 1926, a second blood transfusion from an elder sister after a similar course of vaccine treatment was done, five hundred and ten cubic centimetres (seventeen ounces) of citrated blood being used.

There was a rather severe reaction followed by a decided improvement, the temperature ranging in its daily excursion from 38·9° to 36·7° C. (102° to 98° F.) instead of from 40° to 35·6° C. (104° to 96° F.) with parallel improvement in appetite and mental condition. It seemed evident that the degree of toxæmia was distinctly lessened. This was maintained for three weeks, but then her condition became as bad as before and emaciation proceeded apace.

On May 23, 1926, signs of pneumonia appeared and remained of migratory type for six weeks.

On July 13, 1926, death occurred from exhaustion.

The improvement that occurred in this severe case of three months' standing after the second transfusion, seems to indicate that immuno-transfusion is worth trying and in a similar case I would seek to use it as early in the disease as possible.

BILATERAL GLIOMA RETINÆ.[1]

By C. G. Berge, M.B., Ch.M. (Sydney), D.O. (Oxon.), D.O.M.S. (England),
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Clinical History.

S.B., a female infant, aged six weeks, was admitted to the Renwick Hospital, Summer Hill, with a history of vomiting and diarrhœa for twelve days prior to admission. The mother was deceased. The child's weight on admission to the Institution was 3·3 kilograms (seven pounds five ounces). The patient's condition became progressively worse and the weight on December 31, 1925, was only 2·7 kilograms (six pounds); then there was a gradual and sustained improvement.

On April 29, 1926, I was asked by the superintendent to examine the infant's eyes on account of a nystagmus. The pupils were dilated with homatropine and cocaine and with the ophthalmoscope a white reflex was seen in both eyes in the retina over the site of the maculæ to the extent of about three discs in diameter. This whitish area was slightly raised from the surface of the retina and the discs appeared to be normal, as also was the rest of the fundus; the discs were reddish in appearance, the

[1] This case was reported at a meeting of the New South Wales Ophthalmological Society on August 4, 1926.

lens was quite clear. A blood film was taken at this stage and seemed to be normal.

On May 14, 1926, both eyes were again examined with the ophthalmoscope and a whitish mass was seen in the region of both maculæ and appeared to be larger and more raised and there was detachment of both retinæ, the tension was full in both eyes. A diagnosis of bilateral *glioma retinæ* was made.

On August 4, 1926, the patient was shown at a meeting of the Ophthalmological Society. The tension was increased owing to secondary glaucoma. On August 6, 1926, the left eye was enucleated with a long portion of the optic nerve. Following upon a pathological report both macroscopical and microscopical confirming the diagnosis of *glioma retinæ* on September 30, 1926, the right eye was enucleated with as long a pedicle of the optic nerve as was possible. In both cases the eye socket healed rapidly and there was a minimum of disturbance of general health. The patient's condition then commenced to improve rapidly and the weight increased to 8·5 kilograms (nineteen pounds two ounces) and on October 30 she was discharged from the hospital, well. Both eyes were pathologically prepared and the report by Dr. Tebbutt was as follows:

> Bilobed greyish tumour causing detachment of the retina growing in the posterior chamber and not apparently infiltrating the chorioid or sclerotic—nor is there any macroscopical evidence of any hæmorrhage. Microscopically the neoplasm consists of masses of rounded, oval and irregularly shaped cells and there is little connective tissue. Necrosis is marked, while rosettes of Wintersteiner are a striking feature in some areas, that is to say, cylindrical cells arranged in a perfect ring around a small lumen. These are more or less typical of glioma of the retina (*vide* Parsons, Volume 2.).

Comment.

Glioma retinæ is a rare disease and as a rule only one eye is attacked, although about a quarter of the cases have been observed in both eyes. It is a malignant disease confined to infants and children up to the age of five years and has rarely been discovered in those of a later age. In bilateral *glioma retinæ* the growth appears simultaneously (as in this case) or independently, the second eye being affected any time—even as long as three years after the disease has been found in the first eye. The second eye condition is an independent affection and not metastatic, as has been proved by the fact of a patient living for years without any recurrence, when both eyes have been removed. So early is this condition recognized at times (as in the present case at five months) that its beginning must be dated back to fœtal life. It is probably always congenital, several children of the same family being often affected, thus suggesting it to be of this nature. The prognosis is not good and if the eye is not enucleated, secondary extension to the brain, skull bones, face and other internal organs forming a fungating hæmatodes of the eye in the last stages, results. The prognosis is fair if operation is performed in the early stages. If the patient lives for three years after the removal of the eye for glioma and during that time no fresh growth has developed, all possibility of a recurrence can be discounted. In sarcoma of the chorioid (the other important malignant disease of the eyeball itself) recurrence may occur and must be kept in mind at any stage of life, even many years after enucleation.

In this type of malignant disease one cannot give any definite prognosis as in *glioma retinæ*. Several conditions occur in children which give rise to similar signs as those found in *glioma retinæ* and so add to the great difficulty in diagnosis. Inflammatory deposits, forming a fibrous sheath as a result of organization of inflammatory exudates behind the lens, are due to a quiet form of cyclitis. Congenital defects due to a persistence of fibrovascular sheath at the back of the lens also simulates glioma. So also do tuberculosis of the chorioid and a persistent hyaloid artery. These conditions can be proved only by a pathological examination. In any case the eye (in these conditions) would be of no use as a visual organ.

Reviews.

THE WASSERMANN REACTION.

A book which should prove useful to the general practitioner, the syphilologist and the serologist is one entitled "The Clinical Interpretation of the Wassermann Reaction," by Robert A. Kilduffe, Director of Laboratories of the Atlantic City Hospital.[1]

As the author points out no attempt has been made to enter deeply into the technical complexities or abstract minutiæ surrounding the mechanism or application of the complement deviation test in syphilis. The reader, therefore, need not fear that in the book he will be confronted with a mass of detail dealing with methods of technique. No more than fifty pages are devoted to the principles and mechanism of the complement fixation reaction in syphilis while the remainder of the book—a further one hundred and fifty pages—deals with the significance of the reaction in the various stages of syphilis, in latent syphilis and neurosyphilis. A chapter is devoted to the reaction in pregnancy and in prenatal and congenital syphilis.

Anticomplementary reactions, often unintelligible to any but the serologist, are explained and the relation of the test to the treatment of syphilis as well as the significance of the test as an indication of cure are also discussed.

A short critical survey is given of the precipitation methods in the serodiagnoses of syphilis, while the last but by no means the least important chapter deals with the method of collecting specimens for the complement fixation test. A table of references at the foot of each page enables those whose interest would lead them further afield, to place at once the original article dealing with the subject under discussion.

The author, obviously a devoted admirer of Kolmer, who ranks as one of the greatest serologists of the present day, has presented his facts clearly and concisely.

The data presented are not based on results of his own investigations alone, but in each instance a brief survey is given of the results of other well known workers, mostly in America, but also in England and on the Continent.

Many misconceptions occurring in the interpretation of the results of the Wassermann test could be dissipated were the facts as outlined in this book more widely known. For this reason its addition to any medical man's library is to be recommended.

A TEXTBOOK ON FOOD.

Dr. Robert Hutchison's well known work "Food and the Principles of Dietetics" has entered its sixth edition.[2] The first edition was published about the beginning of this century, the contents having been given to medical students in the form of a course of lectures. In the new edition under consideration the general plan of the book has been retained. Naturally new matter has been added, notably the late discovery in the study of dietetics that no diet is conducive to the prolongation of health, unless it contains certain substances generally known by the ugly word vitamins or as it has been more elegantly expressed accessory food factors. These vitamins are carefully considered and the author quotes Hindhede who has been surprised to find how little adults need vitamins and that animal experiments in this respect may be misleading. Hutchison hints that other vitamins may be yet discovered which may play a part in the production of pellagra, famine fever and other conditions of continued ill-health which at present are a puzzle to practising physicians.

[1] "The Clinical Interpretation of the Wassermann Reaction," by Robert A. Kilduffe, A.B., A.M., M.D.; 1926. Philadelphia: Lea and Febiger. Demy 8vo., pp. 217. Price: $2.50 net.

[2] "Food and the Principles of Dietetics," by Robert Hutchison, M.D. (Edinburgh), F.R.C.P.; Sixth Edition; 1927. London: Edward Arnold and Company. Royal 8vo., pp. 630, with illustrations. Price: 21s. net.

The discussion of the protein optimum is a good piece of scientific reasoning. He ends this by saying it is perhaps safest to assume that the protein in the diet of the average man should not fall below eighty grammes a day; that it should be derived from mixed sources and should contain if possible a certain amount of animal origin. In reference to this he quotes Bayliss: "Look after the calories and the proteins will look after themselves." He finishes his chapter on underfeeding by referring to the lowering of mental power as one of its remote dangers and quotes King Chambers: "The love of purposeless destruction exhibited by the Parisian communists may be fairly credited to deficient food. No well-fed people could have wrecked the Vendome Column or burnt the Town Hall or Tuilleries." In discussing economics and the cost of meat he regrets that there exists a prejudice against the use of horseflesh as a substitute for ordinary meat. And in this connexion he deplores the neglect of maize as a food as he considers it of great nutritive value. "Cheap bread is a bitter agonizing cry and we may best respond to it by instructing the toiling masses in the excellence and cheapness of maize and the proper methods of preparing it." In discussing beef extracts he deprecates their uses as a food or even a stimulant. However, he quotes the experiments of Pawlow which go to show that they are the most powerful exciters of gastric secretion.

Two chapters are devoted to spirits, malt liquors and wines and one to the physiological action of alcohol. Regarding the latter its action is commented on in an impartial and unimpassioned way. As a poison he says: "Whenever the proportion of alcohol circulating in the blood becomes greater than the cells can rapidly decompose, its effects as a protoplasm poison become manifest. These effects culminate in intoxication which is really a condition of cell paralysis so that the expression paralytic drunk has a truer physiological meaning than those who use it commonly suppose." The other two chapters on wines and liquors are too full and might have been curtailed. The whole can be expressed in three words, bouquet, taste and reputation. Too much is paid for the guaranteed brand on the cork.

The last nine chapters will appeal to the general practitioner. Amongst other useful things, schemes of dieting children from the time of weaning up to three years of age are given.

Altogether this work ranks amongst the best of its kind and will be useful as a book of reference. If it has any fault at all it is the fact that out of thirty chapters only nine are devoted to the everyday work of the practitioner. This seems out of proportion.

THE IDENTIFICATION OF BACTERIA.

A second edition is to hand of Bergey's "Manual of Determinative Bacteriology,"[1] a book which provides a key for the identification of bacteria.

In the new edition various errors of nomenclature appearing in and inseparable from a first edition of a work of this character have been corrected and descriptions of individual species have been amended and amplified.

The inclusion in the index of discarded synonyms renders the work more useful as a book of reference.

The committee responsible for the book solicits the continued interest and cooperation of all bacteriologists in its efforts to amplify the descriptions of species and make their identification more definite. It is only by cooperation that this can be accomplished and the object in view—the perfection of a manual of determinative bacteriology with a generally accepted system of nomenclature—is one which is worthy of support.

[1] "Bergey's Manual of Determinative Bacteriology: A Key for the Identification of Organisms of the Class Schizomycetes," by David H. Bergey, Assisted by a Committee of the Society of American Bacteriologists with an Index by Robert S. Breed; Second Edition; 1925. Baltimore: The Williams and Wilkins Company. Royal 8vo., pp. 478. Price: $5.50 net.

A MANUAL OF LABORATORY METHODS.

The fourth edition of "Medical Laboratory Methods and Tests" by French and Nuthall is one of the most useful small handbooks dealing with chemical and microscopical tests as aids to diagnosis of disease that we have seen.[1] It gives in detail the commoner and simple methods and comments on the conclusions that may be drawn from the various tests. Few books dealing with microscopical and chemical tests deal with the clinical significance of the results of the tests and the fallacies to which they are liable in the same clear manner that is maintained throughout this little book. The chapter on the examination of the urine is the best in the book. Other chapters deal with the examination of the blood, sputum, pus, gastric contents and fæces while attention is also given to the examination of material from the skin, serous exudates, cerebro-spinal fluid and the preservation and staining of morbid anatomy specimens. The majority of the tests given can be performed by students and medical practitioners who have not at hand the facilities of a fully-equipped laboratory.

The style is simple and lucid throughout and everything that is said is worthy of attention. The methods given are up to date and only those are detailed which experience has shown are reliable and of value. The authors appear to be absolutely familiar with all the phases of the subject with which they deal except perhaps bacteriological technique.

Cultural methods are not dealt with. Perhaps this is wise. The only faults we have to find are with the description of the Widal test and the coloured plate purporting to represent the microscopical appearances of *Bacillus anthracis*. The method given for carrying out the Widal test is by the use of the microscopical technique; only two dilutions are made, a one in twenty and a one in two hundred, by means of a platinum loop. The authors state: "The test gives positive proof of typhoid fever if the clumping occur within half an hour with a serum dilution of one in two hundred. If the clumping take place with a dilution of one in twenty and not with one in two hundred, typhoid fever may or may not be present. The reaction is seldom fully positive until after the end of the first week of the fever." Many samples of serum of persons with enteric fever in this country would fail to yield a response to the Widal test under these conditions. Other dilutions between the one in twenty and the one in two hundred could be made without appreciably increasing the time consumed, while greatly increasing the value of the test. It would be very satisfactory if the result of the test were unequivocal after the end of the first week.

The plates and drawings throughout the book are very good and helpful, but the coloured drawing of *Bacillus anthracis* on Plate III is very misleading.

We congratulate the authors and publishers on the production of an extremely useful and well produced book which every medical student and practitioner would be well advised to purchase.

POISONS.

Murrell's "What to do in Cases of Poisoning" is a popular and useful friend to all students and practitioners. The thirteenth edition revised by Philip Hamill shows little if any additions.[2] The book is small enough to put in the breast pocket. The poisons are grouped in alphabetical order as before, whilst there is an excellent index. It is to be hoped that this publication which has existed since 1881, will not be allowed to disappear.

[1] "Medical Laboratory Methods and Tests," by Herbert French, M.A., M.D. (Oxon.), F.R.C.P. (London), and Tallent Nuthall, M.D. (London); Fourth Edition; 1926. London: Baillière, Tindall and Cox. Crown 8vo., pp. 256, with illustrations. Price: 7s. 6d. net.

[2] "What to do in Cases of Poisoning," by William Murrell, M.D., F.R.C.P.; Thirteenth Edition Revised by P. Hamill, M.D., D.Sc., F.R.C.P.; 1925. London: H. K. Lewis and Company, Limited. Royal 32mo., pp. 282. Price: 4s. 6d. net.

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Criminality and Mental Deficiency.

It has been shown by many investigators that the intelligence of a large proportion of criminals is below the accepted standard of normality and that among the criminal insane crimes of certain types are associated with intelligence of low grade. Dr. S. J. Minogue published in this journal in April, 1924, the results of his investigations into the mental state of criminals at the Parramatta Mental Hospital, New South Wales. He found that murderers were persons of superior intelligence and that the low grade imbecile is more prone to indecent assault and robbery. As a rule he does not belong to the habitual criminal class, evidently because his mental deficiency is recognized at the time of his first crime and he is then put under proper care and control until he is sixteen years of age. Dr. Minogue found that criminals with numerous convictions against them who were mentally deficient, were high grade imbeciles or morons. Professor E. Morris Miller and Dr. W. Inglis Clark reported in 1925 the results of an investigation into the intelligence of the prisoners in the Hobart gaol. Of one hundred and seventeen prisoners nine were imbeciles, twenty-five were feeble-minded and thirty-six were on the border line. Twenty-one were of inferior normal intelligence, twenty-three of average and three of superior normal intelligence. It was found that when the prisoners were segregated according to the different classes of mental state, the number of gaol offences fell by 68%.

In discussing the question of the criminal insane it must be remembered that under Utopian conditions all mental defectives would be recognized early in life. The routine examination and mental testing of children would result in the control or segregation of those whose mental equipment renders them unfit for the hardships and hazards of the work-a-day world. Under present day conditions the higher grade defectives and morons, unlike the imbeciles and defectives of low grade, are not recognized as such. They are the class from which so many criminals are recruited. At the same time the crime of the criminal insane is not due to mental defect *per se*. It is in large measure the result of association with persons of criminal tendencies, if not with actual criminals. It thus follows that any attempt at treatment of mentally defective criminals is somewhat in the nature of shutting the stable door after the horse has escaped. But the horse after his escape need not be placed behind the sliprails in a paddock with vicious animals from whom he will acquire new and evil ways. The obvious thing to do with all criminals is what has been done in Tasmania. They should all be graded and segregated according to their mental condition. The defectives of a lower grade will then be kept apart from those whose influence will lead them further into antisocial habits.

The criminal insane in New South Wales are under the medical care of the Inspector-General of Mental Hospitals. In his report for the year ended June 30, 1926, which came to hand recently, Dr. C. A. Hogg refers to the inadequate provision made for the criminal insane in regard to accommodation and he points out that many persons who ought to be in hospital, are still in gaol. He makes strong recommendations in regard to methods by which these difficulties of accommodation may be remedied. He also holds that the time has arrived for the more scientific teatment of prisoners sent to observation wards in gaols. He recommends the appointment of a committee consisting of two psychiatrists and a psychologist "for the more thorough and expert examination of such prisoners, with power to make recommendation for their disposal."

The proposal to subject prisoners to expert examination is essentially sound. Dr. Hogg's views on the importance of a knowledge of psychology on the part of those called upon to treat insane persons is well known. In his paper at the Dunedin Congress he included psychology as one of the subjects to be taught to students of psychiatry both before and after graduation. Several members of Congress objected to the systematic teaching of psychology and psychiatry to students. This point

need not be discussed at present. Few, however, will fail to agree that anyone claiming to have expert knowledge in the treatment of persons suffering from mental disease, must have a thorough understanding of the normal processes and must be able to determine the extent of any departure from normal standards of mentality. In other words every psychiatrist must be a psychologist. Under no conceivable conditions should a layman be allowed any say in the disposal, in other words in the care, of mentally affected persons. This will entail the removal from the court of the determination of the responsibility of the accused person for his crime. The court will determine whether the accused has committed the crime and his disposal will depend on the findings of the expert body. If he is mentally deficient, he will be placed with others of the same grade of mentality. If he is insane, he will be put under the care of the mental hospital authorities.

If it be granted that it is advisable to subject criminals to expert examination with a view to their segregation, it is but logical to extend the examination to the inmates of all gaols in the Commonwealth. In this way one of the gaps in the control of mentally defective persons will be bridged. Control will not be satisfactory until all the gaps are filled in—until it is continuous. To attain this end use must be made of every expedient compatible with existing social conditions.

Current Comment.

THE RELATION OF PULSE RATE TO TEMPERATURE.

In last week's issue there appeared an admirable article from the pen of Carmalt Jones on the relationship of pulse rate to temperature in disease. The author approached the subject from the clinical point of view and showed that the fever of acute infections produces a rise in pulse rate which corresponds closely with the rise in temperature. Although he does not make the statement in so many words, he apparently holds that the rise in temperature *per se* affects the pulse rate. Thus he writes: "If the pulse rate remains high after the temperature has fallen or if it is relatively higher than the temperature, it is to be inferred that something other than the rise of temperature is affecting the pulse rate." He points out also that "there can be little doubt that in infective toxæmia the parenchyma of organs is readily damaged, the damage may be merely 'functional' and capable of recovery or any degree of degeneration may occur." From these two statements it might be inferred that two explanations of the acceleration of the pulse rate are advanced, one that the increased rate is merely a result of a rise in body temperature and the other that it is due to some local action on the heart. D. M. Lyon holds that it is important to know which of these two explanations is correct, because the answer determines both prognosis and treatment.[1]

Lyon has studied the relationship between pulse and temperature in persons suffering from fever of various types and in persons who had received intravenous injections of peptone. He studied the coefficient of correlation in fifty-nine persons and found that thirty of them had correlation constants indicating a high degree of relationship between pulse and temperature. A further fourteen had values which indicated a close relationship. The best correlation was encountered in pneumonia. It was found that disturbing factors were frequently responsible, when the relationship was not good. Either the patient had been taking digitalis, salicylates or adrenalin or he had been having frequent ice packs. Low correlations were found in fatal cases of pneumonia. In all his calculations Lyon estimated the experimental error to three places of decimals. His general conclusions are similar to those reached by Carmalt Jones and in addition he expresses the opinion that pulse rate increase in fever is in large part a passive result of elevated temperature. This is what Carmalt Jones states by implication. Lyon further implies what Carmalt Jones actually expresses in regard to damage to the heart muscle. In other words, although an increase in pulse rate is determined by the rise of temperature *per se*, the heart muscle is affected. This effect on the heart may be what Carmalt Jones calls "functional" and in these circumstances the heart muscle is able to cope with the insult which is offered to it. Fault may perhaps be found with the use of the word functional in this connexion, because the process is something more than ordinary wear and tear, it is a response to a pathological event, albeit one of minor importance. Be that as it may, the fact remains that the clinician must seek for a cause of variation in the pulse rate in the course of illness. The heart muscle may or may not be either temporarily or permanently damaged.

It is well to refer to the work of Newburgh and Porter which is discussed by Lyon. These observers carried out perfusion experiments on dogs. They came to the conclusion that in pneumonia the heart muscle was essentially normal, while pneumonic blood was distinctly poisonous to either healthy or pneumonic heart muscle. When suddenly introduced into the circulation, the toxic blood led to a lowering of the cardiac efficiency and lessened the duration and the area of contraction. When the poison was withdrawn, the character of the contraction was restored. In pneumonia the heart,

[1] *The Quarterly Journal of Medicine*, January, 1927.

being exposed to the action of the toxin, adjusted itself to the poisoned food (Carmalt Jones's "functional" recovery). Lyon holds that the available evidence is not sufficient to justify either a bad prognosis when the pulse and temperature fail to correspond or a favourable one when the agreement is close. He suggests that further investigation along these lines may prove fruitful. This "further investigation" is represented by the work of Carmalt Jones. Careful study of the charts supplied by him will reveal that prognostic significance can attached to alterations in the pulse-temperature relationship. The progressive rise in pulse rate during an infective illness is important. The temperature curve might suggest that all was well. As already stated, the medical attendant, faced with such a chart, must determine the cause of the departure. If he comes to the conclusion that all possible causes with the exception of cardiac damage may be excluded, he will give a grave prognosis. Emphasis must be laid on the other causes. For example, Carmalt Jones shows that in disease of the pleura a high pulse rate is seen. He thinks it possible that the disturbance may be of nervous origin. There are exceptions to every rule and recovery may occur even when the disturbance between pulse and temperature is extreme. Under these circumstances it is justifiable to assume a permanent damage to the myocardium. This damage may have a practical bearing on the progress of a subsequent illness and a knowledge that disturbance of a serious nature had occurred perhaps years before would be of service to the attending practitioner. The myocardial damage caused by influenza epidemics has occasioned the death of many persons in a subsequent illness of relatively minor importance.

THE DIAGNOSIS OF WEIL'S DISEASE.

While Weil's disease or infective jaundice was epidemic during the war on the peninsula and at Mudros, there is no record of a sporadic case or any epidemic in Australia. This absence is all the more remarkable in view of the fact that it is caused by a leptospira discovered by Inada that lurks in tropical and subtropical countries in dirty, stagnant water and is conveyed by rats. Subtropical conditions, dirty, stagnant water and rats abound, but hitherto the *Leptospira icteroides* has not been discovered in Australia. The immunity is unlikely to be permanent, for it is as a rule a mild disease terminating in recovery and could readily pass the barriers of the most vigilant quarantine sentinels.

In these circumstances it is of importance that attention should be directed to any method of arriving at a diagnosis when the infection is not severe. In the past the usual method of making a diagnosis was to withdraw some blood and to examine it in stained specimen or by dark ground illumination. When no leptospiræ were found, some of the blood was injected into guinea pigs which are very susceptible to the infection. The organism is by no means easy to find in blood smears. If the preparation be made with greatly diluted blood for dark ground microscopy, the organisms may be so sparse that hundreds of fields will have to be searched until one leptospira is recognized. It has been claimed that the difficulty increases as the disease proceeds.

Blanchard and Lefrou attempted to adapt the method of repeated centrifugation employed by Bruce and Nabarro in order to increase the number of parasites in the material to be examined. They maintained a speed of 1,600 revolutions for three periods of ten minutes and then collected the sediment which consisted of platelets and leptospiræ. D. W. Schüner and G. Sieburgh[1] have found that this method often fails largely because the delicate organisms are not thrown down at this speed. They have therefore modified the procedure. Two or three cubic centimetres of blood are drawn into a syringe half filled with citrate solution. The mixture is then spun in a centrifuge for five or six minutes at 1,500 revolutions per minute The sediment consists of all the erythrocytes and some of the leucocytes. In the supernatant fluid the leptospiræ are floating undamaged. This fluid is removed by means of a pipette and again spun at the same speed for ten minutes. This time all the white blood corpuscles and some of the platelets are deposited, but the leptospiræ still remain floating. The supernatant fluid is again removed with care and after having been transferred to a clean tube, is spun at 3,000 revolutions for thirty minutes. This prolonged force brings all the leptospiræ into the sediment with the remainder of the platelets. The fluid can now be poured out without disturbing the sediment. A small quantity of the sediment is then removed by means of a capillary tube and a slide is prepared for dark ground examination. The authors admit that they have not been able to examine blood from patients with Weil's disease in this way; they devised the technique with the blood of infected guinea pigs. When blood was examined without centrifugation, only one leptospira was seen in one hundred fields. The centrifuged deposit yielded specimens with eight leptospira was seen in one hundred fields. The centrithat the method can be applied to human blood. The recognition of the leptospiræ is not difficult, provided that the observer has had experience of these parasites. Their spiral curves, their delicate structure and their characteristic movement enable the microscopist to distinguish them from all other spirochætes and from structures simulating protozoa.

If the general practitioner encounters an obscure febrile condition in a patient with jaundice, a palpable spleen and some albuminuria, Weil's disease should be thought of and blood should be collected in citrate solution in an all-glass syringe and sent to a competent microbiologist for examination by this method.

[1] *The Journal of Tropical Medicine and Hygiene*, February 15, 1927.

Abstracts from Current Medical Literature.

PÆDIATRICS.

Meckel's Diverticulum.

I. A. Abt and A. A. Strauss (*Journal of the American Medical Association*, September 25, 1926) report three cases of Meckel's diverticulum in which intestinal hæmorrhage was the most striking symptom. Hæmorrhage began in one patient at seven months, one at nine months and one at twenty-two months of age. The bleeding occurred intermittently, although one patient had persistently tarry stools. The other two had occasional hæmorrhages, consisting at times of bright red blood and at other times of tarry stools. The loss of blood continued in all three instances for about three months and in this period a high degree of anæmia developed. In one instance the hæmorrhage was profuse, the mother having reported that the diaper was soaked with bright red blood and that it contained no fæces. In another of the patients the blood was freely mixed with the stool and was tarry in character. It is the tendency towards repeated hæmorrhages that is characteristic. In one of the authors' patients did perforation occur, although this is apparently a frequent complication when hæmorrhage is the main symptom. It occurred in ten out of the thirteen cases reported in the literature. Perforation may occur during the period of hæmorrhage or months after the hæmorrhage has ceased. Vague abdominal pains may be present, but there is nothing characteristic about them. Palpation of the abdomen does not aid in establishing the diagnosis. The abdomen is usually soft without local tenderness. The condition may last for years. Peritonitis after perforation and severe and persisting anæmia have caused death. If bleeding persists and a presumptive diagnosis of Meckel's diverticulum can be established, exploratory laparotomy is indicated. All three patients of the authors recovered after operation. The presence of gastric epithelium in the mucosa of the diverticulum with its tendency to produce ulcers would explain the hæmorrhage and perforation which sometimes occur in this aberrant pouch.

Ultra-violet Radiation and Rickets.

A. F. Hess, M. Weinstock and E. Sherman (*Journal of the American Medical Association*, January 1, 1927) report a case in which irradiation of a mother with ultra-violet rays led to a marked increase in the antirhachitic potency of her milk. The milk was tested before and after a period of artificial irradiation. The milk was given in definite amounts to young rats which were placed on a standard low phosphorus diet. After X ray examination had shown that rhachitic lesions were present, a ration of twenty-five cubic centimetres daily of human milk was given in addition to the rickets producing diet for a period of nine days. The animals were again exposed to X rays, their blood was analysed for its content of inorganic phosphorus and the bones were prepared for microscopical examination. It was found that milk given in this amount failed to produce any sign of healing of the epiphyses. The inorganic phosphorus in the blood was exceedingly low, 1·98 milligrammes per hundred cubic centimetres. The woman was then irradiated by means of the mercury vapour lamp for the period of one month. The milk was again collected and given to similar rats in the same amounts. In every instance calcification of the epiphyses was evident. The inorganic phosphorus content of the pooled blood of the animals was 5·61 milligrammes per hundred cubic centimetres. It was evident that antirhachitic properties had been developed in the milk as the result of the irradiation of the woman. This increase in antirhachitic activity of the milk was not due to an increase in its phosphorus content, as after the irradiation the phosphorus content of the milk was rather below the normal. In order to ascertain whether the increase was due to an increase in the antirhachitic factor, the unsaponifiable fraction was separated from the milk of the irradiated woman and compared with a similar fraction of milk from a non-irradiated woman. Comparative feeding tests of this fraction of the milk from these two sources showed that the one obtained from the irradiated woman contained antirhachitic properties, whereas the other fraction was inert. Thus irradiation enables the nursing mother to transmit the protective factor to her offspring.

The Protein Requirement of Children.

W. M. Bartlett (*American Journal of Diseases of Children*, November, 1926) discusses the protein requirement of children. He studied a group of diabetic children who were available for study over long periods of time and whose diets were accurately controlled. The diets used to control these diabetic children differed only slightly from those reported by Newburgh and Marsh. Definite metabolism periods were marked off during which food nitrogen, stool nitrogen and urinary nitrogen determinations were made. The patients were given at first a low caloric diet with only 0·6 to 1·0 gramme of protein per kilogram of body weight. When the urine became sugar free and the blood sugar fell to a normal fasting level, nitrogen studies were begun. After a week or two the diet was gradually raised in calories by increasing the fat content and to a lesser degree the carbohydrate content of the diet, until nitrogen metabolism reached a minimum. The patients were then studied over periods varying from four to eight months, their protein intake being kept constantly at a low level. It was thus possible to demonstrate the protein-sparing action of the ingestion of fat. As the caloric requirement was fulfilled in each of the patients studied, the child came into nitrogen balance and began to gain in weight. The nitrogen equivalent of the protein intake was constant at 3·5 grammes. It appears probable from the study of these children that the protein requirement falls from 1·5 grammes per kilogram during the first year in a way almost directly proportional to the diminution in the rate of growth, inversely proportional to the age and to the calories given per kilogram. Children between the ages of four and fourteen maintain a positive nitrogen balance, grow in stature, gain weight at a normal rate and develope normally when supplied with 0·6 to 1·0 gramme of protein per kilogram of body weight, provided that their caloric requirement is fulfilled and the diet contains an adequate supply of foods rich in vitamins.

Puncture of the Cisterna Magna.

Donald Stewart (*Edinburgh Medical Journal*, January, 1927) reviews a series of one hundred and twenty-seven cistern punctures in children of ages varying from seven months to twelve years. The contraindications to cisternal puncture are any intracranial conditions which cause the cistern to be partially occluded or obliterated. Cerebral tumour is therefore an important contraindication. Occasionally in very advanced meningitis a certain degree of softening of the cerebral tissues brings the vital structures in the floor of the fourth ventricle into the line of puncture and in such cases cisternal puncture is not advised. The operation may be used for purposes of diagnosis when lumbar puncture fails. In tuberculous meningitis the organism is not commonly found in the fluid obtained from lumbar puncture. In the ten cases of tuberculous meningitis in this series tubercle bacilli were found in the lumbar fluid in only four and then at a late stage of the illness. In the cisternal fluid tubercle bacilli were demonstrated in every instance, in five after centifugalization of the fluid for twenty minutes; in the other five they were demonstrated after incubating the fluid for twenty-four hours. In treatment the introduction of serum, irrigation and drainage may be successfully carried out by cistern puncture, especially when lumbar puncture is impossible.

ORTHOPÆDIC SURGERY.

Fracture of the Os Calcis.

Maynard C. Harding (*Journal of Bone and Joint Surgery*, October, 1926) introduces a new method of reduction for fractures of the *os calcis*. The type of fracture discussed is the "smash" fracture in which there is not only a transverse break through the body, but the bone is crushed from above downwards and made so

broad that it projects as far as the malleoli. There are three essentials for a reduction of such a fracture. The posterior end of the heel must be drawn down so that the weight will be borne on the tuberosity and not on the fracture line. The anterior end must be pushed up to restore the arch. The broadening must be corrected. To effect this the knee is bent over the end or side of a table. A sharp claw retractor is fixed into the skin at the back of the heel by a slight blow, this gives traction at the most advantageous point. On a stool with a screw top is placed a triangular wooden wedge. The stool is screwed up until the wedge presses firmly into the sole of the foot at the calcaneocuboid joint. The forepart of the foot is sharply flexed with one hand, while the retractor in the other hand draws down the *os calcis*. A cabinet maker's D clamp is now applied to the sides of the *os calcis*, the pressure points being protected by felt or rubber. The clamp is then screwed slowly until the width of the heel is reduced. A very light plaster of Paris cast is put on from the toes to the mid-thigh region with the foot in extreme plantar flexion and the knee slightly bent to maintain relaxation of the calf muscles. The cast should be left on about three weeks, but full weight-bearing should not be allowed under three months. The author has treated fifteen patients by this method and all have returned to work.

Fractures of the Shaft of the Femur.

W. K. WEST reports ten cases of fracture of the shaft of the femur in which adhesive traction in connexion with a plaster spica was used (*Journal of the American Medical Association*, January 22, 1927). This is a modification of several methods. Adhesive strapping is applied to the limb in the ordinary way for extension and then stockinet and padding are added. The plaster spica is applied after reduction is effected and the top half of the cast from 7·5 centimetres (three inches) above the knee to the ankle is cut away, a Balkan frame is used with two weights, one weighing 7·2 kilograms (sixteen pounds) to suspend the limb from the bed, the other weighing 9·0 to 13·5 kilograms (twenty to thirty pounds) being used for traction. Traction is maintained for four to six weeks and then a simple plaster spica including the foot is worn for another four weeks. The advantages claimed are the comfort of the patient, traction and definite fixation. Results in older children have been gratifying, also in adults with fractures of the upper half of the shaft. In fractures of the lower half in adults the author doubts whether this method is as good as others.

Avulsion Fracture of the Tuberosity of the Ischium.

HENRY MILCH (*Journal of Bone and Joint Surgery*, October, 1925) says that isolated fracture of the ischium is a distinct rarity, but that the following case may be of value in the elucidation of the mechanism of the fracture. The patient was a female, aged eleven years, who was practising the steps of a fancy dance. When attempting to do a "split" she felt something slip and immediately fell backwards, unable to rise She complained of great pain in the right buttock radiating downward along the course of the hamstring muscles. Sitting was painful and she was unable to stand. Within several days the acute symptoms subsided and she was permitted to get out of bed. She walked with a limp and there was no pain over the *tuber ischii*. When the knee was extended there was definite pain and limitation of movement as regards flexion was noticed. Extension of the right thigh was found to be not so powerful as that of the left. Rectal examination elicited a sharp, painful response. X ray examination revealed a crescentic shadow, exactly the same shape as the tuberosity, displaced somewhat posteriorly and laterally to the body of the ischium. No treatment was given except rest and within several days all movements were painlessly performed. The patient was allowed to leave hospital at end of four weeks.

The Operative Lengthening of the Tibia and Fibula.

LEROY C. ABBOTT (*Journal of Bone and Joint Surgery*, January, 1927) publishes results of operation performed in six cases for shortening of the limb. In each instance the shortening present amounted to 3·75 centimetres (one and a half inches) or more. The patients had all suffered in early life from poliomyelitis and the maximum shortening had occurred below the knee. Operation was considered a failure in one case owing to complication which rendered extension impracticable, the other five patients had gains of from 3·75 to 4·6 centimetres (one and a quarter to one and seven-eighths inches). Special apparatus for extension was devised consisting of two steel drills, inserted above and below the section of the tibia, two extension pieces to enable accurate and measured lengthening to be made and two "stabilizers" which were designed to prevent the fragments tilting and so hindering union. The limb is put up on a Thomas splint with an adjustable foot piece. After careful preparation the Thomas splint is slipped on and tourniquet applied. The steps of the operation consist of lengthening of the *tendo Achillis*, osteotomy of the fibula, insertion of drill pins, osteotomy of the tibia and application of stabilizers and foot piece. The Thomas splint is then raised and the apparatus carefully adjusted. The foot is elevated until swelling has subsided before lengthening is begun between the seventh and the tenth day. Then the screws are turned an equal amount on each side daily, until there is a gain of a maximum of five centimetres (two inches). Daily inspection is essential and great care is necessary not to put too great tension on the tissues. The average daily gain in length is about 1·5 to 3 millimetres (one-sixteenth to one-eight of an inch) and the entire time of traction about three to four weeks. The apparatus remains in place from eight to ten weeks, when the pins are removed and plaster is applied. From four to five months after operation sufficient callus is usually present to enable the patient to walk with a Thomas walking calliper. This is worn for about two months and gradually discarded.

Coxa Plana.

THE end results of *coxa plana* are discussed by Arthur T. Legg (*Journal of Bone and Joint Surgery*, January, 1927). He describes two types of the condition which he calls the "mushroom" and the "cap" type. In the former the head is broadened and spread out over the femoral neck with some thickening of the neck, but often with not much migration of the epiphysis towards the trochanter and ultimately little shortening or limitation of movement. In the "cap" type there is flattening of the epiphysis with fragmentation, definite migration, more definite spasm, pain and limp and ultimately much more shortening and disability than in the "mushroom" variety. He believes that the type of X ray picture may be a fairly accurate criterion of the end result. As to treatment he does not think weight-bearing influences the ultimate result. One patient after five years of protection manifested the typical disability of a "cap" type in which weight-bearing had not been limited. The end results of the "mushroom" type are often characterized by no shortening, sometimes by about 1·25 centimetres and none by more than 3·75 centimetres; many patients in adult life have no functional disability. The "cap" type almost always leaves considerable disability and shortening.

The Stabilization of Paralytic Hips.

FRANK D. DICKSON describes an operation for the stabilization of paralytic hips (*Journal of Bone and Joint Surgery*, January, 1927). This consists of transplanting the origin of the *tensor fasciæ femoris* from the anterior superior spine of the ilium to a position near the posterior spine. The transplanted muscle is freed with a shell of bone and is passed under the paralysed *gluteus medius*, the nerve supply being preserved. Here it is fastened to its new position in a groove chiselled in the ilium by chromacized gut or silk and the limb is put up in plaster in abduction. The results in forty cases were uniformly satisfactory, even when the *tensor fasciæ femoris* was paralysed and it was found that the support thus afforded the hip was of great service in locomotion. The procedure is used to give stability to the hip in (i) flexion contraction with paralysed glutei (in conjunction with a modified Souter operation), (ii) relaxed hip joints which subluxate on weight-bearing, (iii) a definitely luxated hip (due to paralysis) in order to hold the femoral head in the acetabulum after reposition.

British Medical Association News.

SCIENTIFIC.

A meeting of the Victorian Branch of the British Medical Association was held at the Medical Society Hall, Albert Street, East Melbourne, on February 2, 1927, Dr. B. T. Zwar, the Vice-President, in the chair.

Whooping Cough.

Dr. Robert Southby read a paper entitled: "Pertussis" (see page 564).

Dr. Henry McLorinan read a paper entitled: "Management of Whooping Cough in Hospital" (see page 569).

Dr. Douglas Galbraith said that he found whooping cough a fascinating but at the same time a most difficult therapeutic problem. The results of treatment varied enormously and it appeared that such variation might be due to three factors in particular: (i) difficulty of accurate diagnosis, (ii) variability in the bacteriology, (iii) the relative importance in each individual instance of the local changes in the respiratory tract and the hyperexcitability of the whole nervous system.

With reference to diagnosis, Dr. Galbraith said that during the months when pertussis was prevalent, it was to be admitted that this diagnosis was frequently made when the paroxysmal cough was not due to pertussis, pertussis being accepted as an entity due to infection by the Bordet-Gengou bacillus. The influenza bacillus, for example, was closely related to the Bordet bacillus and it happened not uncommonly that influenzal infections simulated pertussis. Specific vaccine treatment with the Bordet bacillus would naturally be unsuccessful. On the other hand it was frequently found that a mild paroxysmal cough in an infant stopped after one or two injections of vaccine. The parents were delighted, but in these circumstances he was always left with the feeling that the child had not been affected with genuine whooping cough.

Hence to assess the value of any line of treatment, such as treatment by vaccine, the conditions laid down for diagnosis must necessarily be strict. Apart from cultural examination of the sputum, the examination of the blood for the early leucocytosis and relative lymphocytosis appeared the most accurate method.

Many observers were of opinion that there were several strains of the Bordet bacillus, just as there were of the pneumococcus and the strain probably varied not only in different epidemics, but also in different districts during the same epidemic. Thus a vaccine which might be successful in one part of Melbourne, might give little benefit in another. A vaccine made from sputum collected from as many districts as possible was indicated.

It was recognized that in pertussis there were two factors in the production of the cough, the local changes in the epithelium of the larynx, trachea and bronchi and the toxæmia which affected the neurones and led to a hyperexcitability of the whole nervous system. Theoretically the vaccine should be most effective in those cases in which the local changes were more prominent than the general nervous upset.

Treatment resolved itself into two main considerations, to give the child and the other occupants of the house some relief from the cough and to keep up the nutrition.

He was convinced that vaccine, in the doses suggested by Dr. Southby, was a help in a large proportion of the cases in which it was given at an early stage. Perhaps the results were better because the mothers were recognizing the good results of vaccine treatment and were bringing the children along earlier; probably also the vaccine issued was freshly prepared.

In view of the part played by the hyperexcitable nervous system in the production of the cough, he had lately had prepared a 25% solution of magnesium sulphate. Of this he administered by intramuscular injection two cubic centimetres every second or third day. It had been shown that the magnesium content of the blood serum was definitely raised by intramuscular injection of magnesium sulphate and its successful use in chorea suggested to him a trial in pertussis. His experience as yet was too limited to enable him to speak of results.

Phenazone seemed to be the most helpful drug and he considered that it could be safely given in larger doses than was usual. A dose of 0·18 gramme (three grains) every three hours, if combined with a stimulant such as caffeine or sodium benzoate, was well tolerated by a year old child. The proprietary preparation "Thymotussin" (Oppenheim), containing fresh thyme and an imitation of the old German preparation "Pertussin" was useful in many cases. The inclusion of ipecacuanha in a mixture seemed to aggravate the vomiting.

Several minor points in the general management seemed worthy of mention. For example, cold stimuli, such as getting into a cold bed or taking a drink of cold water, would often start a paroxysm. A small fire in the bedroom in cold weather conduced to a more restful night. A fairly tight binder round the child's abdomen helped him a lot when coughing.

The maintenance of nutrition was often a very difficult problem. It was well known that a feed, given immediately after a paroxysm of coughing, would often be retained. He gave a one in one thousand solution of atropine (0·06 to 0·18 mil or one to three minims for a year old baby) five minutes before each feed as was the practice in pylorospasm and it certainly often diminished the vomiting. The use of flour or cereals to thicken the feeds often worked wonders with babies. Probably some of the vomiting was due to gastric disturbance set up by the swallowing of mucus and on this supposition he gave a mild alkaline laxative, such as a good brand of milk of magnesia, in two cubic centimetre (half drachm) doses three or four times a day.

In conclusion Dr. Galbraith said that he was afraid that he had mentioned many elementary points in the treatment of whooping cough. But it was a disease in which on account of the lengthy period of illness and the serious interference with nutrition it occasioned, they had to use every trick they knew. The smaller details of treatment counted for a lot.

Dr. Frank Lind expressed his thanks to the readers of the papers and said that the subject was one which presented many aspects for discussion. Hitherto his only opportunities for observing the course of whooping cough had been in an industrial suburb where the climate and hygienic conditions were unfavourable for the cure of any pulmonary infection.

He had been interested to note that the apparently prevailing view regarding whooping cough vaccine was that this form of specific therapy was distinctly beneficial.

Discussion of non-specific measures involved the consideration of a lot of small things. The "medicated atmosphere" was a time-honoured measure, but in his opinion nothing was gained by placing the child in an excessively moist and hot atmosphere. A simple inhalation was helpful and sufficient.

He generally ordered a brisk stimulating liniment to be applied to the chest and gave detailed instructions regarding the toilet of the mouth and nose. The disadvantage of attention of this nature in infants was that it was likely to excite a paroxysm, but in older children it should be carried out as a measure directed towards reducing the liability to complications.

The question of diet was all important especially in infancy. If medical men had a greater appreciation of the fact that the child's resistance to infective diseases was largely determined by its diet and particularly during the period in which an infant should normally be breast fed, they would pay more attention to the subject than they appeared to do and would strive harder to secure breast feeding.

He was in agreement with Dr. Galbraith in his advocacy of an abdominal binder, designed to guard against herniæ likely to be brought down by the severe coughing.

Dr. Lind urged that a child suffering from whooping cough should be given as much alkali as possible in order to aid in loosening the secretion, to dissolve the mucus in the stomach and to combat the acidosis which ensued on prolonged vomiting.

The later complications of whooping cough should be considered as equal in importance to the immediate. Care-

ful physical and X ray examination should be undertaken with a view to the detection of enlarged bronchial glands. The physician's responsibility did not end with the cessation of the paroxysms, but he should exercise supervision over the child until general well-being, including gain in weight, was established.

Dr. Colin MacDonald said that the use of X rays in the therapy of whooping cough had first been introduced six or seven years previously, sponsored at the time by a very good radiologist. The indications from recent radiological and pædiatric literature, however, were that enthusiasm for irradiation was on the wane.

In the present imperfect state of knowledge regarding the biological effects of X rays it was difficult to formulate the rationale of any form of X ray therapy. That X rays exercised a potent action on lymphoid tissue was well established and if the paroxysm of whooping cough were dependent on enlargement of the tracheo-bronchial glands, it might be expected that the paroxysms would be alleviated by promoting resolution of the glands radiologically.

Dr. F. Kingsley Norris said that he thought that congratulations should be extended not only to the readers of the papers, but to the Science Subcommittee for their choice of a subject of such general interest and importance. Whooping cough was one of the most serious of the infective diseases to which infants and young children were liable.

The many factors influencing the severity of the disease made it extremely difficult to assess the value of treatment. With this object he had employed "paroxysm charts" on which mothers were asked to record the number and duration of the spasms and whether or not they were attended by vomiting. The difficulty had been that although the mothers generally kept the chart well for a few days, their interest soon relaxed. He thought that on the whole it was easier to make observations in private practice than in the out-patient departments of the hospitals.

With reference to diagnosis Dr. Norris said that it was to be remembered that a paroxysmal cough, even when attended by vomiting, did not necessarily indicate pertussis. Babies vomited on slight provocation. He considered examination of the blood a very useful measure and attached much importance to a high lymphocytosis (70% or over) when the cough was suggestive. He had had no experience of serological diagnosis.

A very characteristic feature of pertussis was that it was worse at night or it would be more accurate to say, when the child lay down. This brought them to the possibility that the paroxysmal nature of the cough was related to acute hyperæmia of the tracheo-bronchial glands.

His experience in the vaccine treatment of whooping cough was that a shorter and less severe course ensued when the vaccine was employed early in the catarrhal stage. Large doses, commencing with one thousand millions should be given every two or three days. He had formed the opinion that if the vaccine were given before the catarrhal stage, the result was to prolong the ultimate course of the disease.

The paroxysmal stage was so extremely distressing that anything which offered a prospect of alleviation was worth a trial. He had tried most remedies, including intramuscular injections of ether. These occasioned a certain amount of pain, but did not cause sloughing such as was prone to occur when ether was injected subcutaneously. Ether injected intramuscularly was detectable in the breath within ten or fifteen minutes.

He had had a limited experience of X ray treatment which was based on the anticipated effect of irradiation in limiting the acute hyperplasia of the lymphoid tissue about the root of the lung. In the few children in whom he had employed X ray treatment he had not been able to determine that the results were any better than those attending other methods.

Of drugs the most useful appeared to be phenazone, belladonna and alkalis. Acidosis was a factor in whooping cough, as in so many other diseases of children and if the administration of citrates had no other use, it rendered the mucus less tenacious.

As Dr. Lind had observed, much remained to be done after the termination of the paroxysmal stage and he was in cordial agreement with him in his insistence on hygienic and supportive measures after the patient's recovery from the cough. Tuberculous infection and anæmia were especially to be combated. The serious nature of the disease should be impressed upon parents; also that the disease was not cured when the cough ceased.

Dr. Guy Springthorpe discussed the possible relation between convulsions in pertussis and tetany. The possibility had been considered in the literature of children's diseases for a number of years, various authorities having expressed different opinions, but only recently in the light of studies in the blood chemistry of tetany had accurate observations confirming the suggestion been made. Powers in the *American Journal of Children's Diseases* for November, 1925, had published observations on a small series of these cases which demonstrated a lowered calcium content and increased electrical excitability of the blood; in some the convulsions were controlled by the administration of calcium chloride. The fact that convulsions in pertussis associated with tetany might be controlled by adequate treatment rendered the observations of more than theoretical interest.

The dosage of calcium chloride advised by Graham and Anderson in their papers on tetany (*The British Medical Journal*, May 24, 1924, and *The Quarterly Journal of Medicine*, October, 1924) was one gramme (fifteen grains) every four hours for a period of three or four days in latent cases and in active cases two grammes (thirty grains) every four hours until active manifestations had disappeared. It was generally accepted that the calcium chloride acted through its chloride radical by producing a temporary acidosis. In the diagnosis of tetany in children with convulsions it was to be remembered that the convulsion itself resulted in a swing of the acid base balance to the acid side and consequently active signs, such as facial phenomena, Trousseau's sign, carpo-pedal spasm and laryngeal spasm, might be absent for a variable number of hours or even days after the convulsion. If convulsions had not occurred, some of these signs should be present. Some lowering of the blood calcium, though the severity of the tetany did not correspond with the degree of lowering, and increase in the electrical excitability should occur throughout. These were probably the most consistent criteria of diagnosis.

Tetany was most likely to be present in infants and young children in association with secondary infections or rickets. On this account it was advised to give cod liver oil over a considerable period as well as temporarily resorting to calcium chloride.

Dr. H. Boyd Graham expressed his interest in the papers and discussion and mentioned that he had found it useful in the early diagnosis of whooping cough to provoke a characteristic whooping cough spasm in the case of a suspect by means of a tongue depressor. He also stated that he frequently used a series of three injections of pertussis vaccine prophylactically for other members of the family of a known pertussis subject. He had experienced encouraging results in this direction.

As preferable to gastric lavage he found the oral administration of very weak sodium bicarbonate solution of the greatest value in checking the vomiting, either by dissolving the mucus in the stomach or, if vomited, washing the stomach free of mucus and soothing the catarrhal condition. Possibly, if retained, the alkaline fluid might minimize vomiting by counteracting acidosis.

He wished to emphasize the importance of several principles in treatment. Pertussis shared with influenza the power to depress resistance to infection, so that secondary infections occurred readily and accounted for the serious complications of the disease. Therefore raising the resistance to infection was clearly indicated and under this caption he would include low grade diphtheria antitoxin given by mouth, X ray therapy, violet rays, heliotherapy, baths, fresh air, vaccines of the massive dosage found most useful and perhaps ether injections. He allowed the children to be out of bed if they were afebrile and made a point of directing that they should not be overclothed.

The second principle of treatment was that the patient must secure sleep, even if it necessitated the use of heavy hypnotics. He mentioned the value of "Luminal" in moder-

ate dosage for steadying the tendency to excitability which was such a distressing feature in many instances.

The next principle was to avoid under-nutrition. This was effected by means of alkaline fluid and frequent attempts at feeding with milk, eggs, broth and nourishing food quite irrespective of meal hours, the feedings being made contingent upon the patient's ability to retain about three ounces of alkaline fluid for half an hour.

For the cough Dr. Graham advocated a stimulant expectorant mixture by day, in which the amount of *vinum ipecacuanhæ* was kept small and a sedative mixture for night use.

He was of opinion that vaccine injections should be used in large doses at frequent intervals; in addition to a probable specific effect the general effect of raising resistance to infection was to be borne in mind.

Dr. SOUTHBY in reply said that he agreed with Dr. Galbraith that many of the children were seen earlier in the course of the disease because the mothers brought them along and asked for vaccine since other children had improved under this method of treatment.

He was interested to hear Dr. Graham's favourable report of the prophylactic use of vaccine, but he had never been impressed with its efficacy in this direction.

The device mentioned by Dr. Graham of provoking a paroxysm was a valuable aid in the clinical diagnosis of pertussis. A similar result could often be produced by giving the child a drink.

He had seen two patients who had unquestionably had a second attack of whooping cough and he had also seen the patient, mentioned by Dr. Graham, who had suffered three distinct attacks. On each occasion there had been a distinct history of paroxysmal attacks of coughing associated with vomiting and a distinct "whoop."

DR. MCLORINAN also replied briefly.

ANNUAL MEETING.

THE ANNUAL MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, 30-34, Elizabeth Street, Sydney, on March 31, 1927, DR. R. J. MILLARD, C.B.E., C.M.G., the President in the chair.

ANNUAL REPORT OF THE COUNCIL.

THE HONORARY SECRETARY presented the annual report of the Council and moved that it be received. The motion was carried. The report is as follows:

THE COUNCIL presents the following report on the work of the Branch for the year ended March 31, 1927.

Membership.

The membership of the Branch is now 1,593 as compared with 1,512 at the date of the last report, showing a net increase of 81.

The additions have included elections and resumptions of membership, 136; removals into the area of the Branch, 29. The losses have included resignations, 10; removals out of the area of the Branch, 40; default in payment of subscription, 20; deaths, 10.

The losses by death have been: DR. C. D. H. RYGATE, DR. JOHN FLYNN, DR. G. J. CHIPPERFIELD, DR. W. A. H. BURKITT, DR. O. H. REDDALL, DR. J. ENGLISH, DR. J. M. A. PALING, DR. H. STOKER, DR. L. J. SCOTT, DR. R. P. B. MONSON.

Meetings.

Ten ordinary meetings of the Branch, including the Annual Meeting, three extraordinary meetings and seven clinical meetings were held. The average attendance was 48·2. The ordinary meeting of September 29 was held in conjunction with a meeting of the Section of Orthopædics and of the Section of Pathology and Bacteriology; that of October 28 was held in conjunction with a meeting of the Section of Orthopædics; and that of November 25 in conjunction with a meeting of the Section of Neurology and Psychiatry. The meeting on December 9 took the form of a social evening to which the 1926 graduates in medicine were invited. The extraordinary meetings of August 13 and September 16 were concerned with the subject of the *Workers' Compensation Act*, 1926; and the extraordinary meeting of August 26 dealt with the question of securing new premises for the Branch in view of the fact that the present premises were to be resumed by the Sydney Municipal Council in connexion with the scheme for the widening of Elizabeth Street. The clinical meetings were held at the Royal Alexandra Hospital for Children, the Royal Prince Alfred Hospital, the Women's Hospital, the Sydney Hospital, the Royal North Shore Hospital, St. Vincent's Hospital and the Coast Hospital. The business of meetings during the year included twenty-one papers and addresses and numerous reports of cases and exhibits and lantern demonstrations.

Representatives.

The Branch was represented as follows:

(*a*) *Council of the British Medical Association:* SIR T. JENNER VERRALL, LL.D., Vice-President of the British Medical Association.

(*b*) *Representative Body (1926-1927):* Representative, PROFESSOR A. E. MILLS.

(*c*) *Federal Committee of the British Medical Association in Australia:* (1926) DR. J. A. DICK, C.M.G., DR. R. H. TODD; (1927) DR. J. A. DICK, C.M.G., DR. R. H. TODD.

(*d*) *Australasian Medical Publishing Company, Limited:* DR. GEORGE ARMSTRONG, PROFESSOR F. P. SANDES, DR. R. H. TODD.

(*e*) *Council of the Bush Nursing Association (1926-1927):* DR. R. J. MILLARD, C.M.G., C.B.E.

(*f*) *Council of the Royal Society for the Welfare of Mothers and Babies:* DR. R. B. WADE, PROFESSOR J. C. WINDEYER.

Council.

(*a*) The attendance of members of the Council and of the standing committees was as set out in the table on the next page.

(*b*) The representatives of the Local Associations of Members appointed on the invitation of the Council to attend the regular quarterly meetings of the Council were as follows: DR. G. A. BUCHANAN (Central Southern); DR. K. S. MACARTHUR BROWN (Central Western); DR. A. M. GLEDDEN (City); DR. R. J. TAYLOR (Eastern Suburbs); DR. W. F. SIMMONS (Illawarra Suburbs); DR. W. B. DIGHT (Northern District); DR. G. M. BARRON (Northern Suburbs); DR. E. H. LOXTON (South Sydney); DR. J. BROOK MOORE (Western); DR. W. S. BROOKS (Western Suburbs).

Library.

DR. J. A. DICK, C.M.G., again accepted the position of Honorary Librarian. Donations of books and periodicals were received from THE AUSTRALASIAN MEDICAL PUBLISHING COMPANY, LIMITED, DR. L. W. ROBERTS and others. DR. L. COWLISHAW kindly presented portrait engravings of celebrated medical men of the eighteenth century and a portrait engraving of PROFESSOR T. H. HUXLEY was presented by DR. E. J. JENKINS. The following additional journals have been subscribed to: *British Journal of Surgery, Journal of Neurology and Psychopathology* (British Medical Association), *Archives of Disease in Childhood* (British Medical Association), *Bulletin of the Johns Hopkins Hospital.*

Affiliated Local Associations of Members.

The following is a list of the Local Associations of Members and their Honorary Secretaries:

Balmain District: DR. J. E. SHERWOOD (Balmain).
Border: DR. R. AFFLECK ROBERTSON (Albury).
City: DR. H. A. RIDLER (159, Macquarie Street, Sydney).
Central Northern: DR. A. T. ROBERTS (Newcastle).
Central Southern: DR. R. G. WOODS (Goulburn).
Central Western: DR. K. S. MACARTHUR BROWN (Parramatta).
Eastern Suburbs: DR. R. J. TAYLOR, M.C. (Randwick).
Eastern District: DR. R. SPROULE (Port Macquarie).
Illawarra Suburbs: DR. W. F. SIMMONS (Bexley).
Northern District: DR. J. S. F. BARNET (Armidale).
North Eastern: DR. A. J. OPIE (Lismore).
Northern Suburbs: DR. E. M. HUMPHERY (185, Macquarie Street, Sydney).

Southern District: DR. S. H. WEEDON (Wagga).
South Eastern: DR. H. H. LEE (Wollongong).
South Sydney: DR. J. G. HUNTER (Mascot).
Western: DR. S. R. DAWES (Orange).
Western Suburbs: DR. J. F. WALTON (Summer Hill); Assistant Honorary Secretary: DR. W. M. A. FLETCHER (Haberfield).

Annual Meeting of Delegates.

The Fifteenth Annual Meeting of the Delegates of the Affiliated Local Associations of Members with the Council was held on October 1, 1926, at the B.M.A. Library, Sydney. An account of the meeting appeared in THE MEDICAL JOURNAL OF AUSTRALIA, November 6, 1926, at page 637 and a report of the proceedings was sent to the Local Associations. The Delegates present at the meeting were as follows: DR. A. T. ROBERTS (Central Northern), DR. G. A. BUCHANAN (Central Southern), DR. K. S. MACARTHUR BROWN (Central Western), DR. A. M. GLEDDEN (City), DR. A. MUSCIO (Eastern District), DR. F. G. N. STEPHENS (Eastern Suburbs), DR. W. F. SIMMONS (Illawarra Suburbs), DR. O. A. DIETHELM (North Eastern), DR. J. S. F. BARNET (Northern District), DR. H. F. NORRIE (Northern Suburbs), DR. H. H. LEE (South Eastern), DR. W. W. MARTIN (Southern District), DR. T. M. FURBER (South Sydney), DR. J. T. PATON (Western), DR. H. B. OXENHAM (Western Suburbs).

Sections for Special Branches of Medical Knowledge.

(a) Pædiatrics (inaugurated October 4, 1921).

Chairman, DR. A. W. CAMPBELL; *Honorary Secretaries*, DR. W. VICKERS, D.S.O., and DR. M. J. PLOMLEY. Membership, forty-eight. Meetings were held on April 15 (Annual), June 11 (in conjunction with meeting of the Branch).

(b) Hygiene and Preventive Medicine (inaugurated January 3, 1922).

Chairman, DR. ROBERT DICK; *Honorary Secretary*, DR. E. S. MORRIS. Membership, fourteen. Meetings were held on June 24 (in conjunction with a meeting of the Branch and meetings of the Sections of Pædiatrics and Medicine) and November 15.

(c) Orthopædics (inaugurated May 7, 1923).

Chairman, DR. W. VICKERS, D.S.O.; *Honorary Secretary*, DR. D. J. GLISSAN. Membership, eighteen. Meetings were held on May 15, June 3, July 1, August 26 (in conjunction with a meeting of the Branch and meetings of the Sections of Neurology and Psychiatry and Medicine), September 2, November 10 (Annual).

(d) Pathology and Bacteriology (inaugurated April 3, 1924).

Chairman, DR. C. H. SHEARMAN; *Honorary Secretary*, DR. E. MARJORY LITTLE. Membership, twenty-seven. Meetings were held on July 15, September 29 (in conjunction with a meeting of the Branch and meetings of the Sections of Surgery and Orthopædics).

(e) Neurology and Psychiatry (inaugurated June 5, 1924).

Chairman, PROFESSOR A. E. MILLS; *Honorary Secretary*, DR. J. A. L. WALLACE; *Honorary Medical Secretary*, DR. R. A. NOBLE. Membership, fifty-two. Meetings were held on April 15, June 17, August 26 (in conjunction with a meeting of the Branch and meetings of the Sections of Surgery and Orthopædics), October 21 (Annual), November 25 (in conjunction with a meeting of the Branch).

(f) Oto-Rhino-Laryngology (inaugurated June 11, 1924).

Honorary Secretary, DR. G. R. HALLORAN. Membership, seventeen. Meetings were held on May 27, July 13, December 8, December 8 (Annual).

(g) Medicine (inaugurated October 1, 1924).

Chairman, DR. J. MACDONALD GILL; *Honorary Secretary*, DR. COTTER HARVEY. Membership twenty-seven. Meetings were held on April 13, April 28 (in conjunction with a meeting of the Section of Surgery), July 13 (in conjunction with a meeting of the Section of Surgery), October 14 (in conjunction with a meeting of the Section of Medical Literature and History), November 9 (Annual) (postponed).

ATTENDANCE OF MEMBERS OF THE COUNCIL AND OF THE STANDING COMMITTEES OF THE COUNCIL.

Office-Bearers.	Council.	Executive and Finance Committee.	Ethics Committee.	Organization and Science Committee.	Medical Politics Committee.	Medical Journal Sub-Committee (Executive and Finance Committee).
DR. A. J. ASPINALL	6	—	—	6	—	—
DR. J. E. V. BARLING	4	—	—	—	8	—
DR. F. BARRINGTON	6	9	—	—	—	7
DR. GEORGE BELL, O.B.E.	9	8	—	—	11	—
DR. C. B. BLACKBURN, O.B.E.	5	—	6	—	—	—
DR. F. BROWN CRAIG (Honorary Medical Secretary)	6	—	—	11	—	—
DR. W. H. CRAGO (Honorary Treasurer and Premises Attorney)	9	11	9	6	11	9
DR. A. DAVIDSON	8	—	9	—	—	—
DR. J. A. DICK, C.M.G. (Honorary Librarian)	8	10	—	—	15	—
DR. A. W. HOLMES À COURT	7	—	—	9	—	—
DR. E. M. HUMPHERY	6	—	—	—	9	—
DR. J. L. T. ISBISTER	8	—	6	—	—	—
DR. C. H. E. LAWES	7	1	—	—	16	—
DR. T. W. LIPSCOMB	9	10	—	—	16	4
DR. R. J. MILLARD, C.M.G. (President)	7	9	7	—	13	5
PROFESSOR A. E. MILLS	1	—	—	3	—	—
DR. A. A. PALMER	8	—	9	—	—	—
DR. S. A. SMITH (Vice-President)	6	—	—	8	—	—
DR. R. H. TODD (Honorary Secretary)	9	12	8	12	15	10
DR. R. B. WADE (Ex-President)	6	8	4	—	2	1
Number of Meetings Held	9	12	9	12	16	10

(h) Medical Literature and History (inaugurated June 26, 1925).

Chairman, DR. R. SCOT SKIRVING; *Honorary Secretary*, DR. L. COWLISHAW. Membership, twenty-three. Meetings were held on October 14 (in conjunction with a meeting of the Section of Medicine).

(i) Surgery (inaugurated July 30, 1925).

Chairman, PROFESSOR F. P. SANDES; *Honorary Secretary*, DR. T. FARRANRIDGE. Membership, thirty-six. Meetings were held on April 28 (in conjunction with a meeting of the Section of Medicine), June 23, July 13 (in conjunction with a meeting of the Section of Medicine), September 8, October 20, November 24 (Annual).

(j) Obstetrics and Gynæcology (inaugurated August 6, 1925).

Chairman, PROFESSOR J. C. WINDEYER; *Honorary Secretary*, DR. A. J. GIBSON. Membership, fifty-two. Meetings were held on June 16, September 22, November 17 (Annual).

(k) Radiology (inaugurated December 3, 1926).

Chairman, DR. J. G. EDWARDS; *Honorary Secretary*, DR. M. FRIZELL. Membership, seventeen. The inaugural meeting was held on December 3, 1926.

Federal Committee.

The Federal Committee of the British Medical Association in Australia met in Sydney on August 25 and 26, 1926. A report of the proceedings of the Committee appeared in THE MEDICAL JOURNAL OF AUSTRALIA, September 18, 1926, at page 394.

Australasian Medical Congress (British Medical Association).

(*a*) The Second Session of the Australasian Medical Congress (British Medical Association) was held at the University of Otago, Dunedin, New Zealand, February 3 to 10, 1927. The great success which attended the organization and management of the Session is a matter for hearty congratulation to the President, DR. L. E. BARNETT, the Executive Committee and the Honorary General Secretary, Professor W. P. Gowland. The material presented at the sectional meetings was of high scientific value and the entertainment of visiting members was gracious and generous. Seventy-three members of the New South Wales Branch were members of the Congress.

(*b*) The Federal Committee has been invited by the New South Wales Branch to arrange for the Third Session of Congress to be held in Sydney in the Spring of 1929.

The Medical Journal of Australia.

The high standard which THE MEDICAL JOURNAL OF AUSTRALIA has established for itself in previous years has been fully maintained and the amount of its reading matter has been substantially increased. In regard to the proposal, which originated with the New South Wales Branch, that the Australasian Medical Publishing Company, Limited, should publish a popular health journal or magazine, it is understood that the Company's printing machinery is fully occupied with current work and that, pending additions to the plant, the production of this popular journal has had to be postponed.

Premises.

In anticipation of the resumption of the Association's premises, 30-34, Elizabeth Street, to which attention was drawn in the last report, for the purpose of widening Elizabeth Street between Hunter Street and King Street, steps were taken to obtain a site for new premises elsewhere. No. 137, Macquarie Street, with a frontage of thirty feet, has been purchased. It is understood, however, that, for the erection of a building suited to the requirements of the Association, a wider frontage will be necessary. The premises, 30-34, Elizabeth Street, were eventually resumed on November 1, 1926; and from that date vested in the Municipal Council of Sydney; the Association becoming tenants of the first floor with a lease for two years ending October 30, 1929, at a yearly rental of £800. For the purpose of the resumption a valuation of the premises was obtained from Messrs. Walker Brothers in conjunction with Messrs. Raine and Horne; and the seal of the Association has been attached to a claim of £96,000 for compensation against the Sydney Municipal Council.

Portrait of Dr. W. H. Crago.

Dr. W. H. Crago, in addition to his great services to the Association as Honorary Treasurer for a period extending over thirty-eight years, has been Premises Attorney and, as such, in charge of the Association's building since 1910. The quest for a new home for the Association and the important task of transferring the old premises and their tenants to the new owner and landlord, the City Council, have been mainly Dr. Crago's concern and have had his unremitting attention through the greater part of the year. His work for the Association has, as all the members know, always been done in an honorary capacity; proposals from time to time made to him by the Council that he should receive some remuneration for his services, have invariably been rejected by him. He consented, however, recently to sit for his portrait and advantage was taken of a visit to Sydney of the distinguished artist, Mr. John Longstaff, R.A., of Melbourne, to arrange for Mr. Longstaff to paint a portrait of him in oils. The portrait, which has for some time been on exhibition at the National Art Gallery of New South Wales, will be presented to him by the President during the proceedings of the Annual Meeting.

B.M.A. Lectures.

In pursuance of the resolution of the Council of January 5, 1926, B.M.A. lectures at meetings of Local Associations outside the metropolitan area were arranged as follows:

Central Northern Medical Association, Newcastle, May 19, 1926, DR. A. W. HOLMES À COURT: "Glycosuria."

Northern District Medical Association, Muswellbrook, May 27, 1926, DR. A. W. HOLMES À COURT: "Glycosuria."

Eastern District Medical Association, Kempsey, July 10, 1926, DR. F. BROWN CRAIG: "Hæmorrhage in the Later Stages of Pregnancy."

Central Southern Medical Association, (1) Goulburn, September 9, 1926, DR. H. H. BULLMORE: "Dyspepsia"; (2) Goulburn, February 25, 1927, DR. M. J. PLOMLEY: "Pyelitis in Childhood."

Western Medical Association, Wellington, December 17, 1926, DR. R. J. MILLARD: "Infectious Diseases."

North Eastern Medical Association, Lismore, April 30, 1927, DR. O. A. DIETHELM: "Modern Views on General Medical Treatment in Gastric and Duodenal Ulcer."

Dichotomy.

As a result of a proposal made to the Federal Committee by the Victorian Branch on the subject of fee-splitting or dichotomy as the practice is more commonly called, a communication was received from the Federal Committee to the effect that Principle 10 of the Principles of Medical Ethics, adopted July 14, 1913, by the Federal Committee, should be reaffirmed, *videlicet*:

> "It is unethical for a Member of the British Medical Association in Australia . . .
> (10) to divide fees with or give commissions to medical practitioners or laymen."

A report of the proceedings of the Federal Committee in reference to the subject was published in THE MEDICAL JOURNAL OF AUSTRALIA, February 20, 1926, at page 223.

Professional Confidence.

The attention of the Council was drawn to a practice recently adopted by some insurance companies of including in the policy a clause authorizing any medical attendant of the proponent to supply to the company information in regard to him when requested to do so. The Council was fully in accord with the finding of the Federal Committee, February 4, 1926, on the subject, that, in no circumstances, without the express consent of the patient specifically

given to him, or, when the patient is dead, without the express consent of the executors or administrators, should the medical attendant supply information to an insurance company in reference to his patient.

Contract Attendance: Friendly Society Lodges.

(a) Workers' Compensation Act, 1926.

The relation of friendly society lodge medical officers with their lodges has been complicated by the fact that the *Workers' Compensation Act*, 1926, has extended the compensation payable to workers by their employers to include the cost of medical and surgical treatment. The anomalous position has arisen that, although the employers are compelled by the Act to insure themselves against their liability for this cost, the medical officers continue to provide the treatment to injured worker lodge members free of charge to the employer or the insurer. A proposal to amend the Common Form of Agreement to meet the situation was favourably received by the Friendly Societies' Association and the following proviso, for insertion in Clause 5 of the Agreement after the words "in any Court of Law" was submitted, namely,

> "; and, provided that, in the event of any individual member being entitled for the time being to the medical benefits of the *Workers' Compensation Act*, 1926, or any Act or Acts amending the same, as an injured worker within the meaning of that Act, such member shall not be entitled, during such limited period as medical or surgical treatment is available to him, to medical attendance under this Agreement for the particular injury in respect of which the member is an injured worker under the Act."

It is not yet known whether the proposed amendment is accepted as suitable.

(b) Proposed Federal Model Lodge Agreement.

The question is before the Federal Committee, at the instance of the Queensland Branch, of adopting a "model agreement" for acceptance by the several Branches for use between medical officers and friendly society lodges in their respective States. It has been suggested by the Council to the Federal Committee that, in view of the fact that the New South Wales approved Common Form of Agreement has been in operation for fourteen years and is acceptable both to the profession and to the friendly society lodges and that a good service has grown up under it, it is suitable for adoption as a model agreement for the purpose.

Industrial Hygiene Medical Service Contract.

In regard to the rate of remuneration payable to the Medical Officer appointed under the terms and conditions of the model form of agreement for use between industrial medical officer and employer (company or firm), adopted by the Federal Committee (see THE MEDICAL JOURNAL OF AUSTRALIA, February 20, 1926, page 222), the Federal Committee resolved at its meeting on August 26, 1926, that the rate of remuneration should be not less than £1 1s. per hour or part thereof.

New Articles and By-laws.

Amended Articles of Association for adoption by the Branch, drafted in conformity with the Model Articles of Association for a Corporate Branch approved by the Central Council in accordance with the Articles and By-laws of the British Medical Association, have been received from the Solicitors of the Branch. The new Articles will require a special resolution to be passed for their adoption; and the necessary meetings for the purpose will be convened at an early date in accordance with the Companies' Act. The adoption of the new Articles will necessitate the passing of By-laws. These have been drafted and will be submitted for adoption as soon as the new Articles upon which they are based have been registered.

Congratulations.

Letters of congratulation were sent to SIR ALEXANDER MACCORMICK on the honour conferred upon him of Knight Commander of Saint Michael and Saint George and to SIR ROBERT BOLAM, M.D., F.R.C.P., LL.D., Chairman of Council of the British Medical Association, on the honour of knighthood conferred upon him.

Royal Visit.

In connexion with the visit of Their Royal Highnesses the Duke and Duchess of York to New South Wales, the President, DR. R. J. MILLARD, C.M.G., C.B.E., has been invited by the Government to be present as the representative of the Association at the official landing at Farm Cove on March 26 and at the official reception to be held at the Town Hall, Sydney, on the same date.

Cancer Research.

In response to a request by the University of Sydney Cancer Research Committee, the sum of one hundred guineas was voted as a contribution to the University of Sydney Cancer Research Fund. A memorandum was also issued to members with the object of enlisting their cooperation and support in the appeal for £100,000 which the Research Committee proposed to make. It is satisfactory to note that the sum aimed at was exceeded.

Workers' Compensation Act, 1926.

The *Workers' Compensation Act*, 1926, which came into operation on July 1, 1926, replaced the *Workmen's Compensation Act*, 1916-20. It introduced the American system of giving an injured worker the right to claim from his employer the cost, subject to certain limitations, of the medical, surgical and hospital treatment required to relieve him from the effects of his injury. As a security to the worker, the employer was required to insure against his liability in this regard. At the instance, as it was thought, of the Workers' Compensation Commission, a schedule of fees and charges for services rendered by medical practitioners to injured workers was drawn up based upon a schedule approved by the corresponding Commission in California. The Workers' Compensation Commission, however, intimated later that it did not yet propose to adopt any official schedule. The schedule was, therefore, formally approved by the Council and issued to members for their information and guidance. It is noted that the Act has not introduced any alteration into the relations of medical attendant and patient so far as the mode of recovery of the medical attendant's fees is concerned. The position is, as it was before the Act, that, if the patient engages the services of the medical attendant, the medical attendant looks to the patient for his fees; and, if the employer engages him, he looks to the employer. The insurers have, nevertheless, in a large number of instances, paid the medical attendant directly. As might have been expected, the fees and charges have in a certain number of cases been disputed by the insurers. Difficulty has arisen in regard to claims for payment, where the patient has been a person entitled to the services of a medical officer under a medical attendance contract, as in colliery and friendly society lodge practice; also when the injured worker has been a public hospital patient. In several instances, where insurers have disputed the charges, the accounts have been referred to the Council either by the member concerned or by the insurer. A sub-committee was appointed to deal with such references. In every case the member was requested to supply a clinical history and an itemized statement of the account, so that the sub-committee might be as fully informed as possible; and, with few exceptions, the claims were found to be reasonable.

With a view to protecting the interests of the injured workers and their medical attendants, a resolution was passed at an extraordinary general meeting of the Branch, held on August 13, as follows:

> "That no member of the Association shall accept a salary for the treatment of injured workers (*Workers' Compensation Act*, 1926); and that, in respect of all treatment of injured workers, remuneration for services shall be by fees on such scale as is customary in private practice and not otherwise."

Members were notified of this resolution by memorandum to members dated August 18, 1926. Some directions for

the guidance of members in regard to attendance upon injured workers were issued in a memorandum to members dated March 21, 1927.

In regard to the schedule of fees and charges approved by the Council, July 23, 1926, the Council was invited by the insurers to meet them in conference for the purpose of discussing alterations which would make the schedule acceptable to them, and with a view to a schedule agreed upon by the Association and the insurers being submitted to the Workers' Compensation Commission for adoption. The Council, accordingly, met representatives of the insurers on March 4, 1927, when the insurers submitted proposals. It is hoped that the deliberations of the conference will result in the establishment of a schedule suitable to the purposes of the Act.

It is noted that a *Workers' Compensation (Amendment) Act*, 1927 (assented to 15th March) has now been passed. It provides, *inter alia*, for the omission of Section 10 Subsections (3) and (4) of the 1926 Act and the insertion in lieu thereof of the following subsections:

"(3) The worker shall notify the employer without undue delay that he has obtained treatment, and the cost of such treatment to the employer shall be limited to fifty pounds, unless the Commission otherwise directs.

(4) If the worker obtains medical treatment for himself the employer shall be entitled to have the worker examined by a medical man selected by the employer in consultation with the worker's medical attendant."

It is no longer necessary, therefore, for the injured worker to request the employer to provide treatment as a condition precedent to his right to compensation (medical benefit), as was held to be the case by the Workers' Compensation Commission in Watson *versus* Randwick Municipal Council.

R. J. MILLARD,
President.

Financial Statements.

DR. W. H. CRAGO, the Honorary Treasurer, presented the statement of receipts and expenditure of the Branch and the balance-sheet and profit and loss account for the premises. He pointed out that the receipts for the year had been larger than those in any previous year. Similarly the year had been a very good one from the point of view of the premises' account. Dr. Crago informed the members that progress had been made in regard to the new premises to be erected in Macquarie Street. The financial statements were received.

On the motion of Dr. W. H. Crago, seconded by Dr. T. W. Lipscomb, the thanks of the meeting were accorded to Dr. A. M. Gledden and Dr. F. W. Hall for their services as auditors.

President's Address.

DR. R. J. MILLARD, C.M.G., C.B.E., delivered his address (see page 562).

DR. F. BROWN CRAIG in moving a vote of thanks to Dr. Millard said that he had profited greatly by the clear account of the working of the *Workers' Compensation Act*. He thought that many of the questions submitted by members to the Council would be rendered unnecessary by the address; it contained the replies.

The motion was seconded by DR. C. H. E. LAWES and was carried.

Election of Office Bearers.

The President announced the result of the election of President, Vice-President and members of the Council as follows:

President: Dr. S. A. Smith.
Vice-President: Dr. F. Brown Craig.
Members of the Council: Dr. A. J. Aspinall, Dr. J. E. V. Barling, Dr. F. Barrington, Dr. George Bell, O.B.E., Dr. C. B. Blackburn, O.B.E., Dr. W. H. Crago, Dr. A. Davidson, Dr. J. Adam Dick, C.M.G., Dr. A. W. Holmes à Court, Dr. E. M. Humphery, Dr. J. L. T. Isbister, Dr. C. H. E. Lawes, Dr. T. W. Lipscomb, Dr. R. J. Millard, C.B.E., C.M.G., Professor A. E. Mills, Dr. A. A. Palmer, Dr. R. H. Todd, Dr. R. B. Wade.

A vote of thanks was passed to the scrutineers, Dr. J. G. Edwards, Dr. A. M. Gledden, Dr. H. G. Humphries, Dr. L. G. Tait, Dr. H. S. Marsh, Dr. A. J. Gibson and Dr. H. R. Ridler. Dr. A. M. Gledden and Dr. F. W. Hall were reappointed honorary auditors.

On the motion of DR. C. B. BLACKBURN, O.B.E., seconded by DR. W. H. CRAGO, Dr. S. A. Smith was appointed Representative and Dr. Gordon Craig Deputy Representative of the New South Wales Branch in the Representative Body for the year 1927-1928.

BRITISH MEDICAL ASSOCIATION—NEW SOUTH WALES BRANCH.

Receipts and Expenditure for the Year Ended December 31, 1926.

RECEIPTS.

	£	s.	d.
Balance, forward	2,478	0	3
Subscriptions	7,165	14	6
Interest	158	6	8
Rent (Med. Union)	30	0	0
Official Assignee	23	12	8
Exchange and Discounts	25	19	3
Sales, C.F.A. *et cetera*	26	13	7
	£9,908	6	11

EXPENDITURE.

	£	s.	d.
British Medical Association	1,942	2	6
The Medical Journal of Australia	1,519	0	0
Clerical Assistance	1,372	5	0
Rent (10 months at £800)	666	13	4
Library	211	14	1
Printing and Stationery	191	13	10
Stamps and Telegrams	159	15	4
Federal Committee	150	6	0
Cancer Research Fund	105	0	0
Travelling Expenses	44	2	8
Telephone	28	4	7
Legal Expenses	25	19	0
Mrs. Hean, Cleaning *et cetera*	44	0	0
Exchange, Cheques	11	4	6
Lamps for Microscopes	2	10	0
Sundry Expenses—			
Attendance at Meetings, Repairs *et cetera*	49	13	3
Loan to Premises Account	3,250	0	0
Balance, Cash Book	127	14	9
Balance Petty Cash	6	8	1
	£9,908	6	11

Examined and found correct.
FRED. W. HALL
A. MAITLAND GLEDDEN } *Auditors.*

W. H. CRAGO,
Honorary Treasurer.

Sir Alexander MacCormick, Dr. S. A. Smith, Dr. Gordon Craig, Dr. E. T. Thring, Dr. N. D. Royle, Dr. Sinclair Gillies, Dr. H. Thomas and Dr. W. L. Kirkwood were appointed delegates to attend the annual meeting of the British Medical Association at Edinburgh.

Presentation of Portrait.

DR. R. J. MILLARD said that he had a very pleasant duty to perform before he vacated the chair. He would ask Dr. Crago to accept from the Branch a portrait of himself by Longstaff. It was unnecessary for him (the speaker) to refer to Dr. Crago's claims on the Branch. His long association with the Council and his valuable services as Honorary Treasurer were well known. Dr. Crago had become an institution; they could not get on without him. The portrait seemed to him to be excellent. Dr. Crago said that he was seventy-six years of age, but no one believed him. He was ever young. The portrait was offered as a token of their high regard of him personally and a recognition of his services extending over a period of thirty-eight years as a member of the Council of the Branch.

The portrait, a life-like oil painting of Dr. Crago, was then uncovered. The speech and presentation were followed by prolonged applause.

In accepting the gift, Dr. Crago said that he appreciated the honour that had been done to him very highly. It was the first time that the New South Wales Branch had presented to one of its members a portrait of himself in oils and he was naturally very proud. He wished the portrait to hang in the Hall of the Branch.

Dr. Crago stated that he had become a member of the Branch in 1884, four years after its official recognition. In 1889 he had been elected a member of the Council. At that time there were one hundred and twenty members. In the early days he had acted for three years as Honorary Auditor. He had then been appointed Honorary Treasurer. In 1893 he became Vice-President and in the following year he had filled the chair. The year 1894 had been a memorable one for the Branch. The Honorary Secretary at that time, L. R. Huxtable, had published an important article on the aims and policy of the New South Branch and following on this the Branch became incorporated under the *Companies Act*. In the same year the *Australasian Medical Gazette* had been acquired by the Branch from the late Ludwig Bruck. The first issue under the new proprietorship appeared in January, 1895. During that year Dr. Crago had again taken up the duties of Honorary Treasurer and he had continued in this office ever since, a period of thirty-six years all told as Treasurer and a period of thirty-eight years as a member of the Council. Dr. Crago then dealt with the part that he had taken in connexion with the scheme for the erection of the B.M.A. Building in Elizabeth Street. He maintained that had it not been for the support given to the proposal by Dr. G. Abbott and Dr. J. A. Dick, the property would never have been acquired. He had held several other offices more or less closely associated with the Branch. They included that of Manager of the *Australasian Medical Gazette*, that of Treasurer of the Medical Union, that of Trustee of the Medical Officers' Relief Fund, and those of treasurer of certain benevolent and other funds. The work for the Branch had been a work of love, stimulated by the confidence of his fellow members expressed year after year in their election of him to the Council. He concluded by thanking the members of the Branch for this last token of confidence.

Introduction of Vice-President.

DR. MILLARD explained that as the President, Dr. S. A. Smith was in England, he would call upon the Vice-President, DR. BROWN CRAIG, to occupy the chair until Dr. Smith's return.

DR. F. BROWN CRAIG thanked his colleagues for having elected him Vice-President. He felt diffident in thanking them for placing him in the chair because he was about to occupy it before he had actually earned the right. He promised to do his best to carry on the work until the President's return.

NOTICE.

IT is announced that the following papers will be read at meetings of the Victorian Branch of the British Medical Association:

May 4, 1927.—"Puerperal and Abortion Sepsis," by Dr. E. R. White.
June 1, 1927.—"Empyema," by Dr. Rupert M. Downes, Mr. Alan Hailes and Dr. J. W. Grieve.
July 6, 1927.—"Pyelitis," by Dr. Stewart Ferguson, Mr. Balcombe Quick and Dr. Robert Fowler.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

Howe, Geoffrey Langford, M.B., Ch.M., 1926 (Univ. Sydney), The Rectory, Gladesville.
Levings, Edward Winchester, M.B., Ch.M., 1926 (Univ. Sydney), 27, Gerald Street, Marrickville.
Rawle, Glanville Jeffries, M.B., Ch.M., 1926 (Univ. Sydney), 83, Kingston Street, Haberfield.

THE undermentioned have been elected members of the South Australian Branch of the British Medical Association:

Moreland, Jack, M.B., B.S., 1926 (Univ. Adelaide), Adelaide.
Grote, Albert Walter, M.B., B.S., 1926 (Univ. Adelaide), Adelaide.
Lynch, J. A., M.B., B.S., 1926 (Univ. Adelaide), Adelaide.

Correspondence.

RADIATION THERAPY.

SIR: I can agree to almost all of Dr. Flecker's complaints with regard to the apathy displayed by surgeons and others toward deep X ray and radiation treatment generally. This apathy is due largely to ignorance of results attainable by these means or to prejudice bred of illogical thought upon a few cases where failure has followed these methods.

It may be said that very few cases of cancer of the breast fail to respond favourably to deep X ray treatment, that in cases of this nature, prolongation of life, diminution of pain and obviation of danger from the local and regional glandular involvement is obtained and that ultimate failure is due to the multiplicity of distant metastases when such occur. It may also be said that failure on the part of a surgeon to secure postoperative irradiation of a breast case is impossible to justify upon evidence available today.

But more remarkable still is the failure on the part of gynæcologists to obtain radiation treatment even in the case of inoperable carcinoma of the uterus. In the course of five years' experience in deep X ray therapy I have only in about ten and certainly in not more than twelve cases had an opportunity of irradiating such cases (all inoperable).

Yet, off-hand, I can recall four remarkable successes, one (Sir Alexander MacCormick's and Dr. Pott's case) alive and well after four years, a second (Dr. D'Arcy's) alive and well after the same period and a third (a desperate case of Dr. McKillop's from Brisbane) well and happy after eighteen months and a fourth (Dr. Clarence Read) a recent one in which complete disappearance of a fungating carcinoma and firm cicatrization of the site, together with complete restoration of the patient's health, were observable two months after irradiation.

There are other good results, but at this moment I cannot recall them with any degree of accuracy and they are not essential to the argument.

Other remarkable results are common to all workers in this line, notably the otherwise hopeless intrathoracic sarcomata and especially those growths of the lymphosarcoma type. Other forms of cancer growth show great improvement and sometimes cure while the artificial menopause and relief from the troubles and risks of uterine myomata, obtained without risk by radiation, are only apparently sought by medicos for the benefit of their own wives.

The cost is considerable, but not crippling and the risks infinitesimal alongside those of surgical measures in all such cases.

I cannot agree with Dr. Flecker that there is no excuse for a burn in such cases, because the human factor is an unstable one at best. But what I do complain of is the vicious habit that so many medical practitioners have, in describing to patients a perfectly normal, legitimate and necessary erythema as an X ray burn. These temporary reactions are absolutely indispensable in many cases of malignant disease where a crossfire cannot be obtained and often advisable even where such crossfire is possible. But to describe them as burns, as is generally done, is to damage a colleague, though as a result only of carelessness or ignorance.

Finally with regard to rodents of the eyelid. Such cases are somewhat difficult but almost always successful if proper technique is used. The conjunctiva should be cocainized, a piece of lead foil inserted under the affected lid and the rodent area irradiated with a stiff dose of hard rays (140 kilovolts and two milligrammes of aluminium are enough), which methods will secure complete cure of the lesion without any deformity in well over 90% of the cases. If the orbit or globe is involved, it is another story and deep X ray would probably be necessary, if surgical treatment is impossible. But if failure occurs in such cases, it is technique and not the tool that must be blamed.

There must be hundreds of patients alive and well in Australia today who by reason of their otherwise hopelessly inoperable malignant disease must have been long dead and dry bones had it not been for deep X ray and radium treatment.

The neglect of these methods is becoming a very serious reproach to our profession in Australia which it is to be hoped will soon be removed.

Yours, etc.,

E. H. Molesworth.

235, Macquarie Street, Sydney,
March 2, 1927.

Medical Appointments.

Dr. George Alexander Chambers (B.M.A.) has been appointed an Officer of Health, South Australia.

* * * *

Dr. Edward Angas Johnson has been appointed Deputy Inspector-General of Hospitals, South Australia.

* * * *

Dr. Norman Robertson Bennett (B.M.A.) has been appointed Honorary Medical Officer to the Port Lincoln Hospital, South Australia.

* * * *

Dr. George Elliott Hobson (B.M.A.) has been appointed Medical Officer, Department of Education, New South Wales.

* * * *

Dr. Robert Joseph English (B.M.A.) has been appointed Government Medical Officer at Yass, New South Wales.

* * * *

Dr. Francis John Burns (B.M.A.) has been appointed Government Medical Officer at Ganmain, New South Wales.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xx.

Commonwealth Department of Health: Medical Officer.

Medical Appointments: Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
New South Wales: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
Victorian: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
Queensland: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
South Australian: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in South Australia.
Western Australian: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia. Yarloop Hospital Fund.
New Zealand (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

April 19.—Tasmanian Branch, B.M.A.: Council.
April 19.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
April 20.—Western Australian Branch, B.M.A.: Branch.
April 22.—Queensland Branch, B.M.A.: Council.
April 26.—New South Wales Branch, B.M.A.: Medical Politics Committee.
April 27.—Federal Committee of the B.M.A.: Australia.
April 27.—Victorian Branch, B.M.A.: Council.
April 28.—New South Wales Branch, B.M.A.: Branch.
April 28.—South Australian Branch, B.M.A.: Branch.
May 3.—Tasmanian Branch, B.M.A.: Council.
May 4.—Victorian Branch, B.M.A.: Branch.
May 4.—Western Australian Branch, B.M.A.: Council.

Editorial Notices.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to The Medical Journal of Australia alone, unless the contrary be stated.

All communications should be addressed to "The Editor," The Medical Journal of Australia, The Printing House, Seamer Street, Glebe, Sydney. (Telephones: MW 2651-2.)

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